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Improving Effectiveness of Bioremediation at DNAPL Source Zone Sites by Applying Partitioning Electron Donors (PEDs)

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May 2014

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Enhanced In situ bioremediation (EISB) can be a low-cost approach for accelerating remediation timelines at sites impacted with dense non-aqueous phase liquids (DNAPLs) such as trichloroethene (TCE) and tetrachloroethene (PCE). EISB typically relies on the addition of electron donor formulations to enhance the rate of dissolution and reductive dechlorination. Although vegetable oil is a low cost electron donor, it is typically added in excess amounts to ensure that it is distributed effectively. It has been demonstrated by Harkness (2000) that the cost of electron donor can represent up to 50% of the net present value (NPV) cost when applied using passive (i.e., biostimulation) methods. Hence, the selection of electron donors has a major implication on EISB cost.

The objectives of the field demonstration/validation (DEM/VAL) included: 1.)Demonstrate application of the PED technology at field scale, assess the ability to distribute PED within the source area and enhance biodegradation; 2.) Validate the enhanced performance and efficiency of DNAPL dissolution and dechlorination following the injection of a PED. 3.) Collect cost and performance data for the application of PEDs for source zone bioremediation and provide reliable technical data relevant to field-scale implementation of the PED technology, including documentation of the expected reduction in duration and cost of remediation of DNAPL source sites.

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FINAL TECHNICAL REPORT

Improving Effectiveness of Bioremediation at DNAPL Source Zone Sites by Applying Partitioning Electron Donors (PEDs)

ER-0716

May 2014

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LIST OF ACRONYMS

1,1,1-TCA	1,1,1-Trichloroethane
ADR	advective-dispersive-reactive
AFCEE	Air Force Center for Engineering and the Environment
ASTM	American Standard for Testing and Materials
BTC	breakthrough curve
CCAFS	Cape Canaveral Air Force Station
cDCE	cis-1,2-Dichloroethene
CFC113	1,1,2-Trichloro-1,2,2-trifluoroethane
CMS	Corrective Measures Study
cm/sec	centimeters per second
DEM/VAL	demonstration/validation
Dhc	*Dehalococcoides*
DHG	dissolved hydrocarbon gas
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
DoD	Department of Defense
DoT	Department of Transportation
DPT	direct-push technology
DQI	data quality indicator
DSZ	DNAPL source zones
EDS	Environmental Drilling Services, Inc.
EISB	enhanced in situ bioremediation
ESB	Engineering Support Building
ESTCP	Environmental Security Technology Certification Program
EVO	emulsified vegetable oil
EXWC	Expeditionary Warfare Center
FDEP	Florida Department of Environmental Protection
f_{oc}	fraction of organic carbon
ft	feet
ft^2	square feet
ft BLS	feet below land surface
ft/day	feet per day

LIST OF ACRONYMS cont'd

GAC	granular activated carbon
gal	gallons
GCTL	Groundwater Cleanup Target Level
gpm	gallons per minute
GT	Georgia Institute of Technology
HCP	high concentration plume
HSA	hollow stem auger
IDW	investigation derived waste
IMWP	Interim Measure Work Plan
ITRC	Interstate Technology Regulatory Council
k	coefficient
KBr	potassium bromide
kg	kilogram
kgal	kilo gallons
KI	potassium iodide
K_{nw}	NAPL:water partitioning coefficient
K_{oc}	organic carbon partition coefficient
KSC	Kennedy Space Center
lb	pound
LC34	Launch Complex 34
LCP	low concentration plume
LCS/LCSD	laboratory control sample/ laboratory control sample duplicate
LOX	liquid oxygen
MCL	maximum contaminant level
m/day	meters per day
MEL	methanol-ethanol-lactate
mg/kg	milligram per kilogram
mg/L	milligrams per liter
MIP	membrane interface probe
mmol C/L	millimole equivalents of carbon per liter
MS/MSD	matrix spike/ matrix spike duplicate
NADC	Natural Attenuation Default Concentrations
NAPL	non-aqueous phase liquid
NASA	National Aeronautics and Space Administration

LIST OF ACRONYMS cont'd

NAVFAC	Naval Facilities Engineering Command
NAFVAC ESC	NAVFAC Engineering Service Center
NAVFACSW	NAVFAC Southwest
nBA	n-Butyl acetate
nBuOH	n-Butanol
nHEX	n-Hexanol
NPV	net present value
O&M	operation and maintenance
ORP	oxidation reduction potential
PARCCS	precision, accuracy, representativeness, comparability, completeness, & sensitivity
PCE	Tetrachloroethene
PE	polyethylene
PED	partitioning electron donor
P&ID	process and instrumentation diagram
QA/QC	Quality Assurance / Quality Control
RCRA	Resource Conservation and Recovery Act
R_F	retardation factor
RFI	RCRA Facility Investigation
ROI	radius of influence
RPD	relative percent difference
RTDF	The Remediation Technologies Development Forum
SABRE	Source Area BioREmediation
SOP	Standard Operating Procedure
TCE	Trichloroethene
tDCE	*trans*-1,2-Dichloroethene
TDS	total dissolved solids
TDP	Technology Demonstration Plan
TOC	total organic carbon
TVOC	total volatile organic compounds
UIC	underground injection control
USEPA	United States Environmental Protection Agency

LIST OF ACRONYMS cont'd

VC	Vinyl chloride
*vcr*A	vinyl chloride reductase
VFA	volatile fatty acid
VOC	volatile organic carbon
yd^3	cubic yard
µg/L	micrograms per liter

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Contact information for the key team members are provided in Appendix A.

Executive Summary

Introduction

Enhanced In situ bioremediation (EISB) can be a low-cost approach for accelerating remediation timelines at sites impacted with dense non-aqueous phase liquids (DNAPLs) such as trichloroethene (TCE) and tetrachloroethene (PCE). EISB typically relies on the addition of electron donor formulations to enhance the rate of dissolution and reductive dechlorination. Although vegetable oil is a low cost electron donor, it is typically added in excess amounts to ensure that it is distributed effectively. It has been demonstrated by Harkness (2000) that the cost of electron donor can represent up to 50% of the net present value (NPV) cost when applied using passive (i.e., biostimulation) methods. Hence, the selection of electron donors has a major implication on EISB cost.

Achieving high rates of biologically-enhanced DNAPL dissolution requires that electron donors be delivered effectively to achieve concentrations at the DNAPL:water interface that will sustain the growth and activity of the dechlorinating biomass. Challenges with typical electron donors, such as lactate and emulsified vegetable oils (EVO) include that they are: (1) consumed as they migrate towards DNAPL source zones by non-dechlorinating biomass; and (2) result in the establishment of dechlorinating biomass in zones of dissolved DNAPL. This location can be too far away from the DNAPL to enhance its dissolution.

Partitioning electron donors (PEDs) are electron donors that partition directly into a target DNAPL. PEDs are water soluble, hence they are easily transported to a DNAPL source zone. This property aids in their mixing throughout the source zone and maximizes contact with the DNAPL. Even at high dose rates, PEDs are slowly metabolized, which facilitates delivery without significant loss and allows efficient distribution throughout the source zone. Additionally, PEDs partition strongly into DNAPL from which they are subsequently released, providing a high percentage of reducing equivalents that can be consumed in the reductive dechlorination process close to the DNAPL/water interface, and therefore promote establishing dechlorinating biomass at this interface.

Objectives

The objectives of the field demonstration/validation (DEM/VAL) included:

1. Demonstrate application of the PED technology at field scale, assess the ability to distribute PED within the source area and enhance biodegradation;
2. Validate the enhanced performance and efficiency of DNAPL dissolution and dechlorination following the injection of a PED.
3. Collect cost and performance data for the application of PEDs for source zone bioremediation and provide reliable technical data relevant to field-scale implementation of

the PED technology, including documentation of the expected reduction in duration and cost of remediation of DNAPL source sites.

A number of qualitative and quantitative performance objectives were established in order to assess the effectiveness of the amendment and are discussed in detail in Section 3.

Technical Approach

Laboratory treatability studies were conducted to evaluate candidate PEDs for eventual field application as part of the project. Based on prior research, consideration of physical-chemical properties, material costs, and toxicity, two candidate PEDs, n-butyl acetate (nBA) and n-hexanol (nHEX), were selected for laboratory evaluation for enhanced microbial reductive dechlorination of TCE-NAPL. The experiments, conducted by Georgia Tech, included: (i) PED-NAPL Partitioning Studies to assess key physical-chemical parameters that are important for successful field implementation and included liquid-liquid equilibrium batch studies and mass transfer column experiments (abiotic columns); and (ii) Bench-Scale Treatability experiments to obtain site-specific design parameters for PED delivery, mass transfer, and enhanced microbial reductive dechlorination activity in a TCE-DNAPL source zone. These tests were designed to evaluate mass transfer of the partitioning electron donor and potential microbial activity under anticipated field conditions, and ultimately to demonstrate that the PED enhances reductive dechlorination activity and DNAPL dissolution rates. The results confirmed the strong partitioning of nBA into TCE-NAPL to support dechlorination. The results from these studies were summarized in a Final Treatability Tests report in February 2010 and published by Capiro et al., (2011).

During the treatability studies, the strong partitioning of nBA into TCE- and surrogate-NAPL suggested that a single injection of PED solution was capable of providing electron donor to support microbial reductive dechlorination far beyond the number of PVs delivered, thereby reducing the need for frequent or repeated PED injections. On this basis, nBA was selected as the PED for use in the bench scale biological treatability evaluation.

The PED technology field demonstration was conducted at a source zone (Hot Spot 1) at the National Aeronautics and Space Administration (NASA) Launch Complex 34 (LC34). At this site, TCE DNAPL is associated with a silty sand/silty clay horizon at about 42 to 48 feet below land surface (ft BLS) and TCE concentrations up to 141,000 micrograms per liter (µg/L) had been reported. The zone was amended with nBA above, within and below this low permeability horizon. In total, 34,000 gallons (gal) of nBA solution (3,000 milligrams per liter [mg/L]) was injected using direct-push technology (DPT). The solution volume was selected to be approximately 50% of the total pore volume of the target zone. The amendment zone targeted the center of the Hot Spot 1 area, where TCE concentrations were greatest, roughly corresponding with the area enclosed by the 30,000 µg/L TCE isopleth and extending beyond that by approximately 5 feet (ft) in all directions.

One or more conservative tracers were added to all PED injection fluids. Bromide was used as a conservative tracer in all injection fluids, to provide an indicator of amended fluid; the concentration of bromide would indicate the proportion of injectate in any sample. Iodide was added as a tracer only in the injection fluids introduced above the confining silty clay horizon. The iodide was used to monitor for potential migration of fluid from the upper treatment zone through the clay to the lower zone, which could have occurred as a result of maintaining a lower hydraulic head in the lower zone.

Two sweep zones, one above and one below the clay horizon were separately instrumented and operated, providing two data sets with which to evaluate the performance of the PED technology. Each sweep zone was instrumented with a single central extraction well, from which integrated groundwater samples were collected routinely to monitor the average concentration of various dissolved constituents over time. The groundwater extraction system was operated using solar power. Extracted groundwater was returned to the aquifer through a set of ten groundwater injection wells on the perimeter of the TCE plume. At each of five injection locations, a pair of injection wells was installed, above and below the clay horizon, to help create an inward hydraulic gradient and promote horizontal flow across the top and base of the clay horizon.

Each extraction well operated, at a relatively low flow rate, to maintain an inward hydraulic gradient and collect representative groundwater from the aquifer on either side of the clay horizon. The extracted groundwater was analyzed for volatile organic carbons (VOCs) to establish the baseline flux of VOCs. Once stable baseline conditions were established, the demonstration area was amended with nBA and conservative tracers (bromide and iodide) using DPT injection to deliver the amendments throughout the target zone. This approach delivered the amendment solution throughout the pore volume of the plot all at once, rather than relying on advective transport in a recirculation mode, and allowed the amendments to be preferentially delivered to the clay layer and the portions of the overlying and underlying aquifers where residual DNAPL may be present. A shut-in period, with no groundwater extraction, of six weeks followed to allow the native microbes to acclimate to the nBA and for the biomass to become established within the demonstration area. Soil and groundwater samples were collected to establish the distribution of electron donor and tracer within each zone of the demonstration area prior to starting the groundwater recirculation.

Routine groundwater samples were collected during recirculation to assess the concentrations and flux of various compounds. Comparison of concentrations (VOCs, PED, tracers) in groundwater initially and over time extracted from the central wells were used to assess the "disturbance effect" of direct injection and evaluate the quantity of nBA that was taken up by the DNAPL, sorbed or diffused into secondary porosity of the formation (where the non-aqueous phase liquid [NAPL] also likely resides). Trends in the concentrations of various dissolved constituents in extracted water over time were used to understand changes in the flux of VOCs (and amended compounds). Soil sampling was conducted before (baseline delineation) and after the demonstration area was amended, to establish mass distribution within the plots, and again

after operation was halted, to assess changes over the DEM/VAL operation and correlate these results with the observed trends in groundwater concentrations.

Both sweep zones were monitored throughout the course of the demonstration, to evaluate system performance and evaluate whether laboratory assessment data are useful to predict PED performance under field conditions. The performance was assessed in terms of VOC mass flux enhancement and compared with previous studies using typical, non-partitioning, soluble electron donors such as lactate.

Results

The performance objectives of the DEM/VAL were met. nBA, was successfully introduced to the source area using readily available direct-push injection equipment, with a few extra precautions (e.g. bonding and grounding) for handling the pure nBA. The PED was able to promote biodegradation and achieved sustained production of dechlorination products, even in the presence of 1,1,2-Trichloro-1,2,2-trifluoroethane (CFC113), which was a co-contaminant in the demonstration area. *Dehalococcoides* (*Dhc)* numbers increased. Donor longevity was assessed and donor was present (as total organic carbon [TOC] and volatile fatty acids [VFAs]) up to one year following PED injection. Even with groundwater extraction the donor concentrations were sustained well beyond the point where initial injectate volume was extracted. Tests confirmed that the PED was capable of partitioning into a TCE DNAPL.

Overall, nBA was demonstrated to be a suitable electron donor for source areas. The application was completed using conventional direct-push injection equipment. Geosyntec continues to work with commercial vendors to develop off-the-shelf PEDs that are pre-mixed for ease of application. The use of PEDs for source zone bioremediation is expected to be cost-equivalent to emulsified vegetable oil applications. Donor longevity of nBA was at least equivalent to emulsified vegetable oil applications for similar applications.

The data collected over the study indicated that over the course of extracting two pore volumes that there was an increase in DNAPL dissolution rate as evident from the mass flux of total VOCs observed at the central extraction well. Furthermore, this increase in mass flux was greater than what is typically observed in applications using soluble donor. The shift in the parent:daughter breakdown product ratio over time showed that the breakdown products made up the majority of the total VOC mass flux. The increase in mass flux and increased proportion of breakdown products indicated that there was a source of the parent VOCs in the demonstration area (i.e., residual NAPL), and that there was enhanced dissolution of the source material that was made possible by maximizing the concentration gradient between the sorbed/DNAPL VOCs and water phase.

Time-trend data for the electron donor concentrations was also monitored and compared. Donor concentrations in conjunction with dechlorination product concentrations indicated the extent of sustained biological activity. Results using nBA were compared to those from tests that used soluble donors, such as lactate; the nBA provided a longer period of activity, since it partitioned

into residual NAPL initially and then gradually became re-supplied to groundwater whereas any unused soluble donor would have migrated away from the NAPL source area.

The costs to implement the PED technology for DNAPL source zone treatment will vary from site to site, depending on the size of the site (i.e., impacted volume) and several site-specific characteristics. A cost comparison was made between the PED technology and the most comparable in situ source zone treatment technology, conventional source zone bioremediation using emulsified vegetable oil (EVO). A hypothetical site was assumed to have the following characteristics:

- Sand aquifer (30% porosity) that is 30 ft deep and underlain by a clay aquitard;
- DNAPL source zone is 40 ft wide by 80 ft long by 15 ft deep (15 to 30 ft bgs); and
- 500 kg of TCE DNAPL is present

The calculated costs assume that the DNAPL and Site were previously well characterized. The total cost using PED as the electron donor was estimated to be $571,000, while the total cost using EVO was estimated to be $679,000. The differences in overall cost are attributable to the cost of donor applied in each event (which is a function of the unit cost and amount of donor required; the estimated number of applications is the same in both cases) and the duration of the remedy, which governs the number of monitoring events.

Limitations

The main limitations of using the PED technology are:

- Requires characterization - Similar to any source remediation technology, understanding and identifying of the extent of the source zone is required to estimate the DNAPL mass present and thereby, minimize the zone to be treated. Such an effort would require capital cost expenditures; and

- Site characteristics - Sites lacking suitable microorganisms to ferment the PED and/or sites that have certain geochemical conditions that inhibit biodegradation of target VOCs will require bioaugmentation and/or additional remedial measures.

Benefits

As with all source treatment technologies, delivering the PED into the source area is critical. The nBA was applied to the treatment zone with conventional direct push injection technology. This project showed that the selected PED, nBA, can; (1) achieve high rates of biologically-enhanced DNAPL dissolution; (2) be easily and effectively delivered; and (3) sustain donor supply at an effective concentration at the DNAPL:water interface to promote the growth and activity of the dechlorinating biomass. The PED was water soluble, easily transported to a DNAPL source zone, and less expensive to deliver than other commercial products.

1. INTRODUCTION

1.1 BACKGROUND

EISB can be a low-cost approach for accelerating remediation timelines at sites impacted with DNAPLs such as TCE and PCE. Compared to other remedial techniques, the estimated cost reported from McDade et al. (2005) for ISB was $29 per cubic yard ($yd^3$), in comparison to $88 per yd^3 for thermal treatment, $125 per yd^3 for chemical oxidation and $385 per yd^3 for surfactant enhanced removal, respectively. McDade et al. also indicated that the lower cost for in situ bioremediation was "related to the cheaper unit cost of enhanced bioremediation amendments (electron donor)." Vegetable oil, a low priced electron donor, costs approximately $1.00 per pound (lb). Yet, although the purchasing cost is economical, the amount of electron donor applied at impacted sites greatly affects the cost and efficacy of conducting EISB. It has been demonstrated by Harkness (2000) that the cost of electron donor can represent up to 50% of the NPV cost when applied using passive (i.e., biostimulation) methods.

To achieve high rates of biologically-enhanced DNAPL dissolution, electron donor needs to be delivered, as well as sustained at an effective concentration at the DNAPL:water interface for the growth of and consumption by dechlorinating biomass. Electron donors such as lactate and EVO are consumed as they migrate towards DNAPL source zones (DSZ) by non-dechlorinating biomass. In heterogeneous geological formations containing DNAPL pools and ganglia, there's uncertainty on the efficacy of aqueous and emulsified electron donors; i.e., will the electron donor be present at the DNAPL:water interface with a concentration appropriate to achieve maximum biodegradation rates and dissolution effects. As indicated by a Department of Defense (DoD) protocol funded by Environmental Security Technical Certification Program (ESTCP) (Air Force Center for Engineering and the Environment [AFCEE], et al., 2004), typical electron donor applications have only 1 to 10% efficiency. Hence, typical applications have accounted for the loss of reducing equivalents with the addition of a five to ten times the amount of electron donor required as a safety factor. Adding high concentrations of electron donor may overcome these limitations by allowing higher concentrations of electron donor to reach the DNAPL:water interface; however, this increases the application cost significantly.

PEDs are electron donors that partition directly into a target DNAPL. PEDs are water soluble, hence they are easily transported to a DNAPL source zone. This property aids in their mixing throughout the source zone and maximizes contact with the DNAPL. Additionally, PEDs partition strongly into DNAPL from which they are subsequently released, providing a high percentage of reducing equivalents that can be consumed in the reductive dechlorination process.

1.2 OBJECTIVE OF THE DEMONSTRATION

The objectives of this field DEM/VAL were to:

1. Demonstrate application of the PED technology at field scale, assessing the ability to distribute PED within the source area and enhance biodegradation;
2. Validate the enhanced performance and efficiency of DNAPL dissolution and dechlorination following the injection of a PED; and
3. Collect cost and performance data for the application of PEDs for source zone bioremediation and provide reliable technical data relevant to field-scale implementation of the PED technology, including documentation of the expected reduction in duration and cost of remediation of DNAPL source sites.

The field DEM/VAL was conducted at the National Aeronautics and Space Administration (NASA) LC34, located on Cape Canaveral Air Force Station (CCAFS), Cape Canaveral, Florida. A TCE source area, designated as Hot Spot 1, was identified as separate and distinct from the VOC mass beneath the Engineering Support Building (ESB). This site had a TCE-NAPL source that appeared primarily to exist within/near a lower conductivity unit. Site conditions were appropriate and a suitable on-site support network existed for execution of the DEM/VAL.

1.3 REGULATORY DRIVERS

The United States Environmental Protection Agency (USEPA) maximum contaminant level (MCL) for PCE and TCE in drinking water is 5 μg/L. This concentration is considerably less than the concentrations present in groundwater at many sites throughout the United States. The MCLs for vinyl chloride (VC) and cis-1,2-dichloroethene (cDCE) are 2 μg/L and 70 μg/L, respectively. A significant number of sites have VOCs present as free-phase DNAPLs that will act as long-term sources of VOCs to groundwater. In situ technologies for treatment of these contaminants often focus on the groundwater plume and not the source of contamination. Due to the slow dissolution of VOCs from residual or pooled DNAPL source areas, as well as the slow diffusive release of VOCs from low permeability materials (i.e. back-diffusion), conventional treatments serve solely as containment technologies and require long operational periods to remove significant amounts of DNAPL. Therefore, this demonstration sought to demonstrate and validate a more cost-effective technology to remediate DNAPL source areas and meet these regulations.

2 TECHNOLOGY

The following sections provide an overview of the technology (Section 2.1) and a discussion of the potential advantages and limitations of the technology (Section 2.2).

2.1 TECHNOLOGY DESCRIPTION

Previous studies have demonstrated that many chloroethene-dechlorinating microbial species can tolerate high VOC concentrations (Interstate Technology Regulatory Council [ITRC], 2005; Amos et al., 1997). The location of the dechlorinating biomass relative to the DNAPL:water interface is controlled by (1) toxicity effects of high chlorinated compound concentrations, and (2) the concentration profiles of both the electron donor and the dissolved phase VOCs coming from the DNAPL. When the electron donor and the dechlorinating microorganisms are near the DNAPL:water interface, high rates of biologically enhanced DNAPL dissolution can result.

The concentration profile of the electron donor is controlled by the rate at which it is consumed by native microbes relative to its transport rate by diffusion and advection processes. This results in the electron donor concentration being higher in the bulk water phase, and lower near the DNAPL:water interface. In contrast, the concentrations of dissolved phase chlorinated VOCs will be higher near the DNAPL and decrease away from the DNAPL:water interface. The electron donor and dissolved chlorinated VOC concentration profiles overlap, and the dechlorinating biomass will tend to occur at locations where these concentration profiles create the optimal ratio of electron donor to chlorinated VOCs. Biomass that forms too far away from the DNAPL:water interface will not produce significantly lower dissolved VOC concentrations near the interface where diffusion forces dominate mass transfer of the VOC from the DNAPL into solution.

PEDs are electron donors that partition directly into the DNAPL. The development of the PED approach is a combination of partitioning tracer and electron donor technologies. When PED encounters free-phase DNAPL, it partitions into the DNAPL with a corresponding decrease in its aqueous phase concentration. Depending on the method of PED addition (e.g., a pre-determined mass of PED that is injected in batches, or a constant or stepped concentration delivery scheme), different breakthrough concentrations of PED at the extraction will be observed over time. Analysis of the breakthrough will indicate when the DNAPL in the source area has taken up sufficient PED to achieve the target loading. Eventually, the DNAPL-phase PED will partition back into the groundwater and provide a much higher and sustained concentration of electron donor at the DNAPL:water interface than is achieved with existing electron donor delivery methods. The outcome is the promotion of dechlorinating biomass growth close to the DNAPL, which results in sustained enhanced DNAPL dissolution rates. This approach increases the efficiency of electron donor use for two reasons: (1) it avoids loss (i.e., microbial consumption) of donor as it migrates towards the DNAPL; and (2) it reduces the consumption of electron donor in microbial processes not associated with reductive dechlorination.

2.2 TECHNOLOGY DEVELOPMENT

Various ESTCP projects have provided significant information in the development of EISB and the application of electron donors and PED in DNAPL source areas. Experimental systems and analyses developed to study DNAPL biological dissolution (ER-0008), monitor the treatment of DNAPLs (ER-1293), demonstrate bioaugmentation (ER-9914), evaluate transport of microorganisms (ER-0315), and establish the benefits of DNAPL source zone treatment (ER-1293) have all contributed to the development of this technology. Bioenhanced dissolution was recognized as having the potential to accelerate depletion of source zone mass which would then reduce remediation timeframes and costs.

The use of PEDs was evaluated as part of The Remediation Technologies Development Forum (RTDF) Source Area BioREmediation (SABRE) program. The SABRE project compared six different electron donors, including nBA acetate and nHEX, two (2) soluble PEDs in addition to EVO, for their ability to treat DNAPL source areas. Microcosm results showed that these PEDs could support reductive dechlorination at aqueous TCE concentrations up to 400 milligrams per liter (mg/L). Both of these compounds had the potential to enhance dissolution rates.

As a precursor to the field DEM/VAL, laboratory treatability studies were conducted to evaluate two candidate PEDs, n-butyl acetate nBA and n-hexanol nHEX. This work was performed primarily at the Georgia Institute of Technology (GT) and funded by NAVFACSW. These studies are described in Section 5 of this report. The results suggested that nBA would be a suitable PED for field deployment. In water, nBA undergoes hydrolysis to form acetate and n-butanol. The n-butanol can then be utilized by fermenting organisms to produce butanoate, acetate, and hydrogen. Results of these evaluations were presented in detail in the Laboratory Treatability Study Report in February 2010 (NAVFAC ESC et al., 2010).

2.3 ADVANTAGES AND LIMITATIONS OF THE TECHNOLOGY

Groundwater remediation approaches at DNAPL sites historically employed groundwater extraction and *ex situ* treatment (i.e., pump-and-treat). Unfortunately, these approaches were demonstrated to be ineffective at significantly improving groundwater quality, even after decades of continuous operation (National Research Council, 1994). As a result, remediation technologies such as EISB have received significant attention, as government and industry struggle to develop remedial approaches for source treatment that are less intrusive, more effective, and less costly. The main advantages of the PED technology over other treatment technologies include:

- Cost – PEDs material is generally inexpensive;
- Reduced risk of mobilization - Predictable impact on DNAPL density or viscosity to mitigate the potential effects on DNAPL mobilization; and

- Safety - Non-toxic or generally regarded as safe for use in food products.

The main limitations of using the PED technology are:

- Requires characterization - Similar to any source remediation technology, understanding and identifying of the extent of the source zone is required to estimate the DNAPL mass present and thereby, minimize the zone to be treated. Such an effort would require capital cost expenditures; and

- Site characteristics - Sites lacking suitable microorganisms to ferment the PED and/or sites that have certain geochemical conditions that inhibit biodegradation of target VOCs will require bioaugmentation and/or additional remedial measures.

3 PERFORMANCE OBJECTIVES

The purpose of using a PED in place of a traditional soluble electron donor is to maximize the bioremediation efficiency and improve the DNAPL dissolution rate, while minimizing implementation costs associated with the application of EISB (primarily the cost of electron donors requiring repeated application) in DNAPL source zones. As such, the quantitative performance objectives discussed below were derived to assess the PED application impact on primary parameters such as increased DNAPL dissolution (i.e. increased total VOC mass flux) and reduction in DNAPL mass. It was assumed that the application of PEDs would cost much the same as conventional donors on a per-application basis (for example, delivery using direct-push injection), hence, if PEDs were effective longer (i.e., persisting longer results in less frequent donor amendment) and/or shorten remediation time frames, it would lower overall costs. The success criteria were thus not linked directly to the cost of application; rather, costs were evaluated to confirm that use of PED results in lower operation and maintenance costs by reducing the frequency of donor replenishment and decreasing treatment duration.

The quantitative performance objective success criteria were selected to provide reasonable and measureable goals that could be evaluated with the data collected. The criteria were intended to allow the partitioning behavior of the PED to be evaluated at this site. A number of the qualitative performance objectives were selected as possible effects of PED application that might be observed but were not necessarily required for a successful demonstration. These were generally secondary objectives that were evaluated as much as possible from the collected data.

The increase in total VOC mass flux (Quantitative Performance Objective 3.8) was anticipated to be the primary indicator that the PED was working as intended. The 50% improvement criteria was somewhat arbitrary, given the large number of factors that may have impacted the observed concentration profile, but provided a target that should be distinguishable from inherent variability in the data. Likewise, the reduction in DNAPL mass objective (Quantitative Performance Objective 3.9) was selected to provide a target (50% reduction in DNAPL mass) that could be discerned. Based on the expectation of increased dissolution of the DNAPL, resulting in shorter remediation times, a reduction in operation and maintenance costs was anticipated (Quantitative Performance Objective 3.10) and be quantified in the Cost & Performance Report. A value of 25% reduction was deemed appropriate as a target for cost reduction until actual implementation data are known.

The performance objectives are summarized in Table 1. Detailed descriptions of each performance objective are given in the corresponding sections below.

TABLE 1. PERFORMANCE OBJECTIVES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Performance Objective	Data Requirements	Success Criteria	Results
Qualitative Performance Objectives			
Ease of implementation (Section 3.1)	• Feedback from field crew on handling and operating requirements for PED technology and time required (particularly in comparison to traditional soluble non-PED donor injection).	• PED amendment to the source area can be effectively achieved using readily available equipment.	Confirmed. PED was successfully introduced to the source area using readily available direct-push injection equipment, with a few extra precautions (e.g. bonding and grounding) for handling the pure nBA.
Ability to promote biodegradation (Section 3.2)	• Pre- and post-amendment VOC concentrations in groundwater. • Microbial numbers.	• Increases in the concentrations of dechlorination breakdown products. • Increases in the numbers of dechlorinating bacteria.	Confirmed. • Sustained production of dechlorination products, even in presence of CFC113. Dhc numbers increased throughout both test plots.
Longevity of Electron Donor Supply (duration of remediation) (Section 3.3)	• Time of operation compared to typical application of soluble non-PED donor. • Concentrations of VOCs, nBA & n-butanol, lactate, VFA, TOC and DHG in groundwater.	• Supply of reducing equivalents is sustained for longer than a system using a non-partitioning donor, requiring less frequent donor amendment.	Confirmed. • Donor present (as TOC & VFAs) throughout 8 months (up to one year) following PED injection, declining over course of operation. Sustained well beyond the point where initial injectate volume was extracted.
PED partitions into the DNAPL (Section 3.4)	• Conservative tracer (bromide), nBA & n-butanol concentrations in groundwater following amendment.	• Reduced concentrations of nBA relative to the conservative tracer in extracted groundwater following amendment, indicating uptake by residual DNAPL. • Change in concentration should be proportional to mass of residual DNAPL present.	Confirmed. • Cápiro, N.L., Granbery, E.K., C.A. Lebrón, D.W. Major, M. McMaster, M.J. Pound, F.E. Löffler, K.D. Pennell. 2011. Liquid-Liquid Mass Transfer of Partitioning Electron Donors in Chlorinated Solvent Source Zones. Environ. Sci. Technol. 15;45(4):1547-54
PED partitions out of the DNAPL at a suitable rate and concentration (Section 3.5)	• PED concentrations in groundwater following amendment. • VFA & TOC concentrations in groundwater.	• Observe sustained concentrations of nBA (and products), sufficient concentrations of electron donor to promote dechlorination, and microbial dechlorination products in extracted groundwater.	Confirmed. • Sustained concentrations of electron donor (TOC and VFAs) were observed, with production of dechlorination products. Microbial numbers also increased.
Quantitative Performance Objectives			
Ability to deliver PED into the source area (Section 3.6)	• Injection parameter data and observations from field implementation regarding ability to deliver amendments to target zone. • nBA and tracer concentrations in groundwater and nBA in soil samples following PED amendment.	• Able to deliver desired volume of PED-amended fluid to target zone in a reasonable time (subject to limitations due to geology). • Delivery of at least 75% of the target volume (33,600 gal) of injectate. • Concentrations of PED and tracer are well distributed following amendment.	Success. • Target volume and concentration of PED-amended fluid (33,600 gal) was successfully injected to the target zones. • PED and tracer were reasonably well distributed following amendment.
Increased DNAPL dissolution (Section 3.7)	• Pre- and post-amendment VOC concentrations in groundwater	• Increase in total VOC mass flux to extraction wells. • Total VOC concentrations (as parent-compound equivalents) will show greater enhancement factor than typical donor application (+50% compared with soluble).	Generally Confirmed. • Lower zone experienced an increase in total VOC mass flux to the extraction well. • Upper zone did not show an increase in total VOC mass flux to the extraction well. • Lower zone enhancement factor was in the range for a typical donor application.

TABLE 1. PERFORMANCE OBJECTIVES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Performance Objective	Data Requirements	Success Criteria	Results
Quantitative Performance Objectives			
Improved efficiency of electron donor utilization (Section 3.8)	• Concentrations of VOCs, nBA & n-butanol, VFAs, TOC and DHGs in groundwater.	• Quantity of dechlorination products relative to amount of nBA consumed will be in greater proportion than typically observed using traditional soluble non-PED donors.	Uncertain. • Production of cDCE is masked by existing plume. Final soils do not have nBA, so appears all nBA is in system as TOC.
Reduction in DNAPL mass in the source area (Section 3.9)	• Pre- and post-amendment VOC concentrations in soil and groundwater	• Discernable reduction in the DNAPL mass within the source area. (50% reduction in mass from PED addition).	Confirmed. • Interpolated TVOC mass in DEM/VAL plot accounting for sorption showed a significant decline in TVOC mass (77%). Soil data is sparse and cannot be used to confidently evaluate this metric.
Reduce operation and maintenance costs (Section 3.10)	• Costs for operation and maintenance, including materials, labor and analytical costs. • Time of operation compared to typical application of soluble non-PED donor, using apparent DNAPL dissolution rates to estimate remedial timeframe.	• Shorter remedial timeframe resulting from PED application (relative to non-PED donor), which will lead to reduced operation and maintenance costs. • Experience 25% decrease relative to soluble donor	Generally confirmed. • Donor addition lasted longer, with no biofouling issues, hence requires less frequent donor addition and maintenance. • Estimate of remedial timeframe is difficult.

Notes:
DNAPL – dense non-aqueous phase liquid
nBA - n-butyl acetate
PED - partitioning electron donor
TOC – total organic compound
TVOC - total volatile organic compounds
VFA - volatile fatty acid
VOC - volatile organic compound

3.1 QUALITATIVE PERFORMANCE OBJECTIVE: EASE OF IMPLEMENTATION

To increase the likelihood that the PED technology will be adopted as an approach to source zone bioremediation, it should be straightforward to implement. Ease of implementation using standard equipment and application methods is an important benefit of the PED technology.

The ease of implementation was evaluated based on the experience of field staff and the actual availability and costs of installed equipment. The success criterion for this objective is that PED amendment to the source area is effectively achieved using readily available equipment.

This objective was achieved based on experience with the actual injection of nBA (the PED) at the Site. PED was successfully introduced to the source area using readily available direct-push injection equipment. The injection contractor performed essentially standard injections with a few extra precautions (e.g. bonding and grounding) for handling the pure nBA. Field application of nBA was deemed comparable to traditional soluble donor amendment in terms of equipment, time and effort, once the field crew were educated about nBA handling.

The equipment required for the solar-powered recirculation system was also standard issue, readily available through local suppliers and assembled by technicians with training in basic plumbing techniques.

Ease of implementation using standard equipment and application methods is an important benefit of the PED technology, since this facilitates it being adopted as an approach to source zone bioremediation.

3.2 QUALITATIVE PERFORMANCE OBJECTIVE: ABILITY TO PROMOTE BIODEGRADATION

To be effective, the PED must have promoted biodegradation of the target contaminants. The reduction in contaminant mass is a function of the degree to which biodegradation was promoted in the subsurface. A new control plot was not established for the DEM/VAL, but the project used the results from a prior pilot-scale demonstration at LC34 (Battelle, 2004; Hood et al., 2008) for comparison to a soluble donor system (the previous project used ethanol). Addition of any electron donor can promote growth (biomass) which will in turn accelerate the consumption rate of donor (i.e., the donor consumption rate will vary in time and space) and as such it was not possible to statistically assess equivalent bioactivity between the prior study and the PED demonstration. Note that the goal was not to stimulate equivalent bioactivity – the prior LC34 demonstration experienced biofouling and maintenance to control biofouling was a significant cost. The goal was to demonstrate that the PED (nBA) can be utilized by the native dechlorinating microorganisms and had the ability to promote biodegradation of TCE.

The ability to promote biodegradation using the PED technology was evaluated on the basis of increases in the concentrations of dechlorination breakdown products and increases in the population of microorganisms capable of dechlorination. Reductions in concentration of the

parent compounds also contributed to the evaluation of biodegradation activity. Groundwater samples were collected prior to donor amendment to establish baseline VOC concentrations and microbial numbers; groundwater samples were then collected over time during the demonstration to monitor changes in concentration and/or microbial numbers.

Figure 1 presents the VOC concentrations and microbial enumeration (*Dhc* and *vcr*A) values obtained at the extraction wells for the upper and lower aquifer units (RW0007 and RW0008; respectively). The addition of nBA as an electron donor promoted biodegradation of TCE to less chlorinated daughter products and resulted in a substantial increase in the native dechlorinating populations.

This objective was confirmed by the increases in the concentration of degradation products (cDCE, VC and ethene) from the reductive dechlorination of TCE and increases in the population of dechlorinating microorganisms in response to PED addition. In both the upper and lower treatment zones, sustained production of dechlorination products, including ethene, was observed, demonstrating that the PED (nBA) could be utilized by the native dechlorinating microorganisms and thus had the ability to promote biodegradation of TCE.

3.3 QUALITATIVE PERFORMANCE OBJECTIVE: LONGEVITY OF ELECTRON DONOR SUPPLY

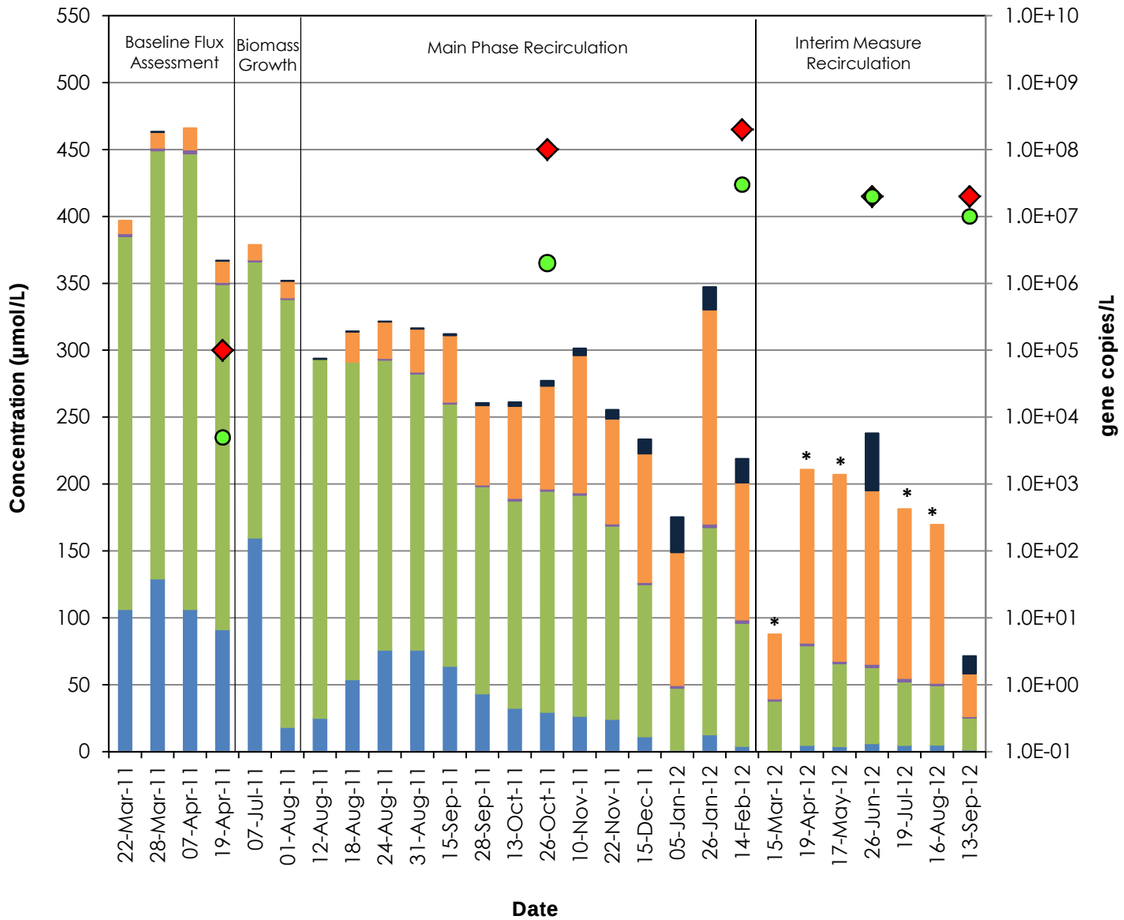
The principal attribute of the PED technology is that the supplied electron donor partitions into residual DNAPL, if present, when it is first supplied, and then re-partitions to groundwater along with VOCs as they dissolve from the NAPL-phase or desorb from solid phases, thus supplying electron donor to the NAPL:water interface where it may be utilized by dechlorinating bacteria. This property of the PED compound means that it needs to be applied less frequently, since the initial quantity amended can be designed to supply reducing equivalents for multiple pore volumes, thus decreasing the frequency of, and associated costs for repeat donor applications.

Longevity of electron donor supply was assessed using time-series groundwater concentration data, namely the concentrations of remaining nBA, donor breakdown products (including n-Butanol [nBuOH] from nBA), VFAs and TOC. Sustained donor supply from a one-time addition of PED is desirable, as it requires reduced frequency of donor replenishment.

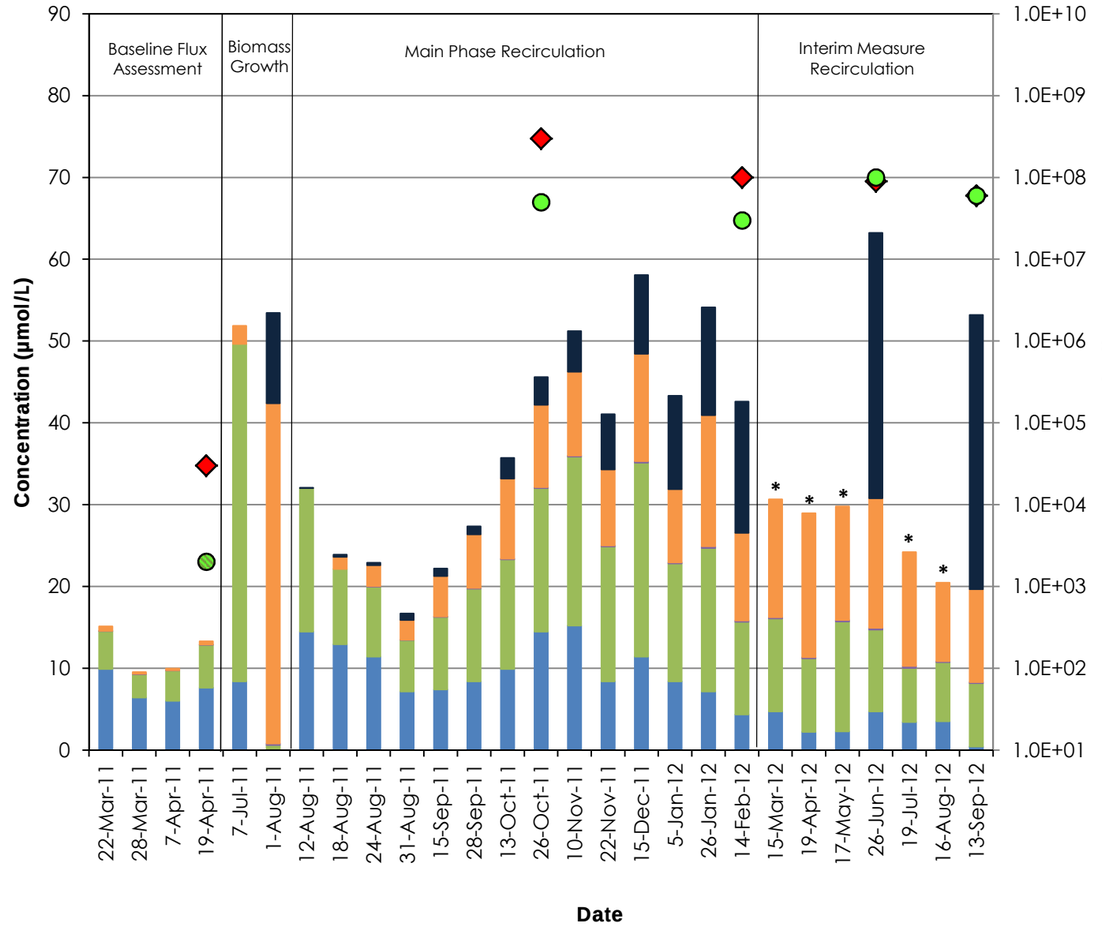
This objective was confirmed by the persistence of electron donor equivalents throughout the DEM/VAL operation. The concentrations of nBA, nBuOH, VFAs and TOC were assessed and are plotted in time-series figures. Donor concentrations observed at the central extraction wells, RW0007 and RW0008, were assessed in terms of the amount of carbon (i.e. millimole equivalents of carbon per liter [mmol C/L]) and indicate that the measured TOC concentrations were generally equal to the sum of the individually quantified components. For example, at RW0007 the TOC concentration was, on average, 91% of the sum of the VFAs plus other carbon-containing compounds (nBA, nBuOH, VOCs and dissolved hydrocarbon gases [DHGs]) and at RW0008, the TOC concentration was 99% of the sum of the VFAs and other measured

carbon-containing compounds (Figure 2). A one-time addition of the PED was sufficient for at least one year of recirculation in the DEM/VAL scenario.

1a) RW0007



1b) RW0008



TCE cDCE tDCE VC Ethene Dhc vcrA

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride
* - no analysis for ethene
Symbols represent microbial characterization results
gene copies/ L - number of microbial genes containing selected markers per liter
Dhc - total Dehalococcoides microbes (qPCR for 16S rRNA gene)
vcrA - qPCR analysis for the Dehalococcoides vinyl chloride reductase (vcrA) gene

Volatile Organic Carbon Distribution History & Microbial Counts for RW0007 & RW0008
Launch Complex 34, Cape Canaveral, FL

Geosyntec consultants

Guelph | October 2013

Figure **1**

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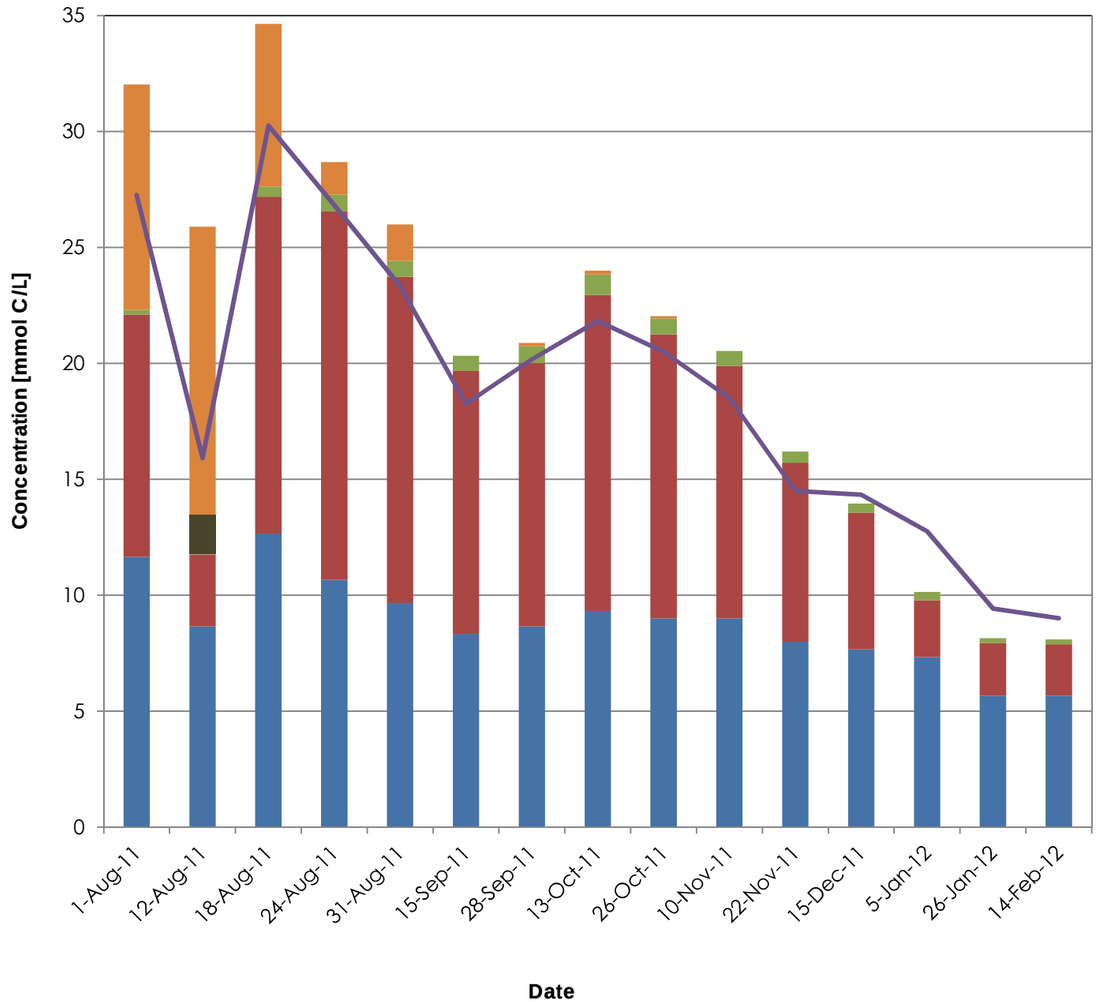
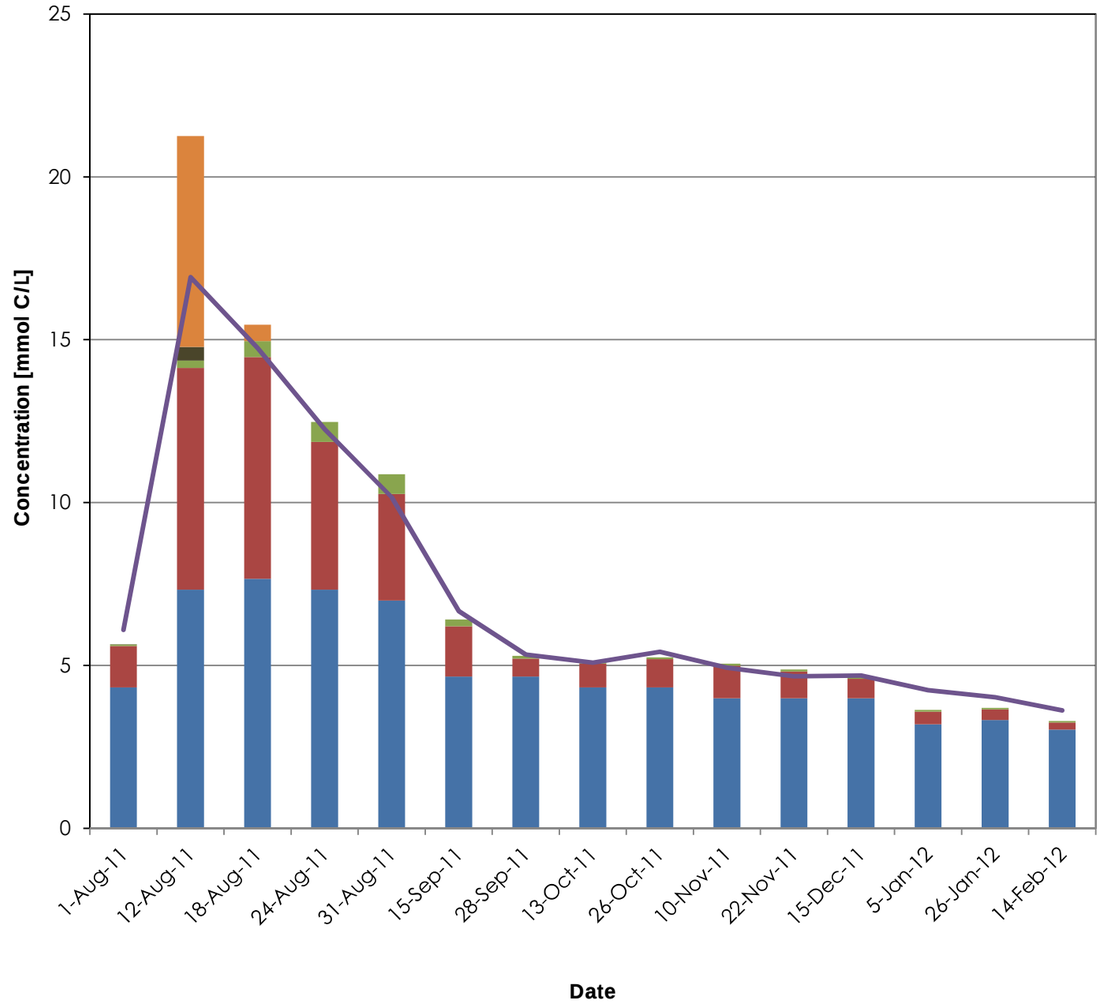
2a) RW0007



2b) RW0008



Acetic Butanoic Propionic nBA n-butanol TOC

Carbon in TOC and VFAs
RW0007 & RW0008
Launch Complex 34, Cape Canaveral, FL

Geosyntec consultants

Figure **2**

Guelph | October 2013

P:\PROJ\Projects\180272 - ESTCP_PED\04 ESTCP Reporting\V1 Final Technical Report\03 FIGURES\[Figure 2a&b.xlsx]Fig 2a_b

3.4 QUALITATIVE PERFORMANCE OBJECTIVE: PED PARTITIONS INTO THE DNAPL

A major feature of the PED technology is the ability of the PED to partition into residual DNAPL phases and sorb to solid-phase carbon, resulting in a decrease in the concentration of PED in groundwater. The amount of concentration change will be directly related to the amount of residual NAPL phase; however, the amount of residual NAPL present in the area is not known, so the degree of concentration change cannot be predicted. It is thus a qualitative objective to detect the uptake of the PED. The PED (nBA) is selected for its high partitioning coefficient, so that a large proportion of the PED delivered initially will become associated with residual NAPL and sorbed-phase contaminants, and be gradually released to groundwater over time as the NAPL dissolves and releases contaminants.

The partitioning of PED into DNAPL was evaluated using groundwater analyses for conservative tracers (bromide and iodide), nBA and nBuOH, and TOC following PED injection. In the Demonstration Plan, it was suggested that nBA and VOC concentrations in soil would be analysed as well, but this was deemed impractical, as it would not be possible to determine whether the nBA and VOCs were in a NAPL phase or not. Because baseline soil data for VOCs showed considerable spatial variability and the presence of DNAPL was not confirmed, it was considered infeasible to attempt to quantify nBA within TCE-NAPL through soil sampling.

Data collected in the field DEM/VAL did not have sufficient resolution to demonstrate PED partitioning into DNAPL. However, this objective was validated during the laboratory treatability tests which clearly demonstrated partitioning in the laboratory column experiments. Results have been published in Environmental Science and Technology (Cápiro et al., 2011). The major reason for the apparent difference in behavior was the amount of NAPL present in each case. As discussed in the Demonstration Plan, the change in the aqueous concentrations of nBA should be proportional to the mass of residual NAPL present. In the laboratory column tests, the emplaced NAPL zone occupied 10-15% of the pore space. At this relatively high saturation, the NAPL phase can sequester a significant amount of nBA, resulting in a relatively large decrease in the aqueous phase concentration of nBA that can be readily detected. In contrast, the DEM/VAL field plot had low residual NAPL saturation (in fact, the degree of saturation could not be determined), such that only a relatively small amount of nBA would need to partition from the aqueous phase to establish equilibrium between the aqueous phase and any NAPL phase droplets. If only a small amount of nBA was sequestered from the aqueous phase, the resulting decrease in the concentration of nBA would be small and difficult to discern in the field data.

3.5 QUALITATIVE PERFORMANCE OBJECTIVE: PED PARTITIONS OUT OF THE DNAPL AT A SUITABLE RATE AND CONCENTRATION

Ideally, the applied PED, once partitioned into residual DNAPL phases and onto sorption sites, must be released to groundwater at a rate and concentration that is sufficient to support

bioremediation. The success of the technology relies on creating a sustained donor supply that matches the release of contaminants.

Assuming that PED partitioning into DNAPL is successful, the expectation is that PED will be released back to groundwater when dissolved-phase PED concentrations decrease as the un-amended groundwater is pulled into the treatment area. The intent is that this will sustain concentrations of nBA and/or its breakdown products that are greater than would persist in a soluble donor system after a pore volume of water has been extracted. In a soluble donor system, the donor will be removed with groundwater. In the PED system, donor is re-supplied from the DNAPL phase (and sorptive sites).

Assessment of this objective required use of nBA concentrations in groundwater over time, nBuOH concentrations, VFA and TOC concentrations, and VOC concentrations in groundwater. The assessment was not straightforward, as the nBA was actively consumed as it migrated toward the extraction well; however, evidence of sustained donor supply provided by the presence of dechlorination products should also support the evaluation. Changes in the amount of DNAPL dissolution were assessed by comparing the total flux of VOCs observed at the central extraction wells before and after application of the PED.

The objective was met. Sustained concentrations of electron donor (TOC and VFAs) were observed, with production of dechlorination products. Microbial numbers also increased. Additional supporting information on this objective is provided in Section 5.7.

3.6 QUANTITATIVE PERFORMANCE OBJECTIVE: ABILITY TO DELIVER PED INTO THE SOURCE AREAS

One objective of the PED DEM/VAL was to demonstrate that the PED can be readily delivered to the source area. In order to be an effective bioremediation approach, the application of PED should have been reasonably comparable to that of other traditional electron donors, so that its other properties can provide an overall benefit. The ability to deliver the design quantity of PED into the source area was expected to be comparable to that of other electron donors.

The objective was to be considered met if the design quantity of PED-amended fluid was delivered to the target zones within a reasonable amount of time (hours), using reasonable injection pressures. The success criterion was to amend at least 75% of the target volume (33,600 gal). This objective was achieved. The injection program successfully delivered the target volume and concentration of PED-amended fluid to the target zones: 34,000 gal of injectate containing 3,000 mg/L nBA with bromide and/or iodide as tracers was injected.

An additional consideration for this objective was that the post-injection concentrations of nBA, in soil and groundwater, were well distributed following amendment. This objective was also met as evidenced by the post-injection sampling event where 11 locations were sampled and

nBA was found in all but the sampling location within the silty clay layer. Of the 10 locations with nBA, 8 had nBA concentrations in excess of 10 mg/L.

3.7 QUANTITATIVE PERFORMANCE OBJECTIVE: INCREASED DNAPL DISSOLUTION

The PED technology is designed to provide electron donor at the NAPL:water interface to promote growth of dechlorinating biomass as close to the source of dissolved-phase VOCs as possible. By promoting and supporting reductive dechlorination close to the NAPL:water interface, the PED creates a steep concentration gradient between the NAPL and the aqueous phases, which results in increased DNAPL dissolution.

The amount of DNAPL dissolution was assessed by comparing the mass discharge of VOCs before and after application of the donor. Mass discharge is an integrated estimate of the mass flux, representing the total mass of any solute conveyed by groundwater through a plane, in this case a cylindrical surface around the extraction well. One advantage of this method is that the extraction well effectively integrates flow and concentration so that even small concentration hot spots and high-transmissivity zones are captured by the well and included in the estimate (ITRC, 2010). Typically this approach requires that the pumping well not increase the flow through the source zone, which might increase the dissolution rate (concentrations may or may not change), pumping be continued long enough that relatively steady-state conditions are achieved, and capture of the high-discharge portions of the plume must be complete or near-complete (ITRC, 2010).

The mass discharge was calculated from the groundwater VOC concentration data and the pumping rate and volume data. The total amount of TCE equivalents was calculated as the sum of TCE and its breakdown products, on a molar basis. The product of these measured concentrations and the volumetric pumping rate yielded an estimate of the total mass discharge rate. Using the pumped volumes, estimates of cumulative total mass discharge over time were determined. Changes in the total amount of TCE equivalents over time indicated changes in the rate of DNAPL dissolution. Extracted groundwater was re-injected in the peripheral ring of injection wells without removing VOCs (or donor); thus, dissolved species in groundwater removed from the extraction wells were re-introduced to the aquifer at the perimeter of the sweep zones. However, to account for this, estimates of the relative amount of recycle were obtained from comparison of the pumped volumes to estimates of the sweep zone pore volume, the tracer data and the TOC data.

It was expected that the PED plot would have increases in total VOC concentrations following amendment with nBA (relative to baseline). This increase in total VOC mass flux would be a primary indicator that the PED application worked as intended. The objective was to be considered met if the increase in total VOC mass flux observed in the PED plot was 50% or greater than that typically observed at sites where soluble donor was applied.

This quantitative performance metric was met. In the lower zone there was an increase in the total VOC mass flux to the extraction well over the evaluation period. However, in the upper zone an increase in total VOC mass flux to the extraction well was not observed. The upper zone may have been affected by the presence of high concentrations of 1,1,2-Trichloro-1,2,2-trifluoroethane (CFC113), a compound that can inhibit reductive dechlorination to ethene.

Time trend plots of the VOCs at extraction wells RW0007 and RW0008 are presented in Figures 3a and 3b. Total VOC mass discharge did not increase at the extraction well in the upper zone even though there was a definite shift towards lesser-chlorinated degradation products, as illustrated by the extent of dechlorination calculation shown in Figure 4a. A number of factors may have contributed to this, including:

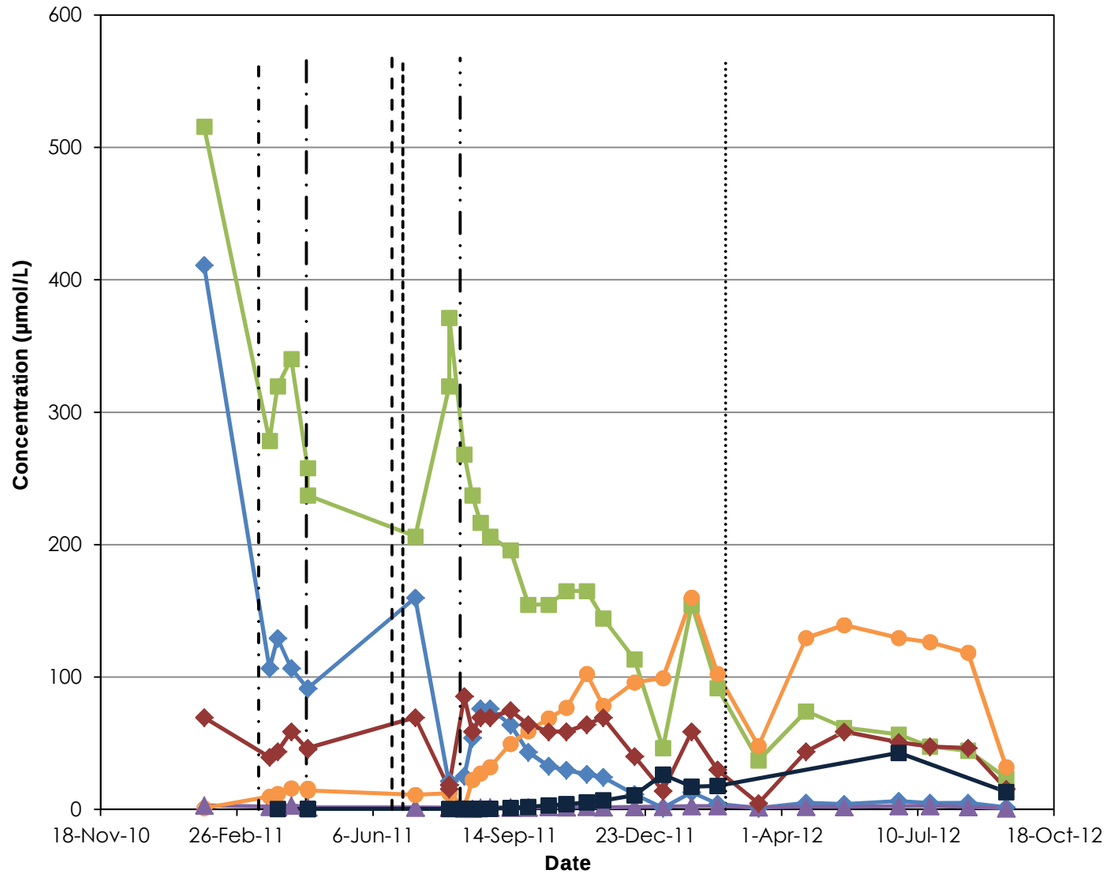
- Elevated concentrations of cDCE present in soil and groundwater before the DEM/VAL began obscured the effect of PED promoting degradation of TCE to cDCE;

- Sustained elevated concentrations of CFC113 could inhibit the dechlorination of cDCE, which would further obscure the quantification of the amount of dechlorination; and

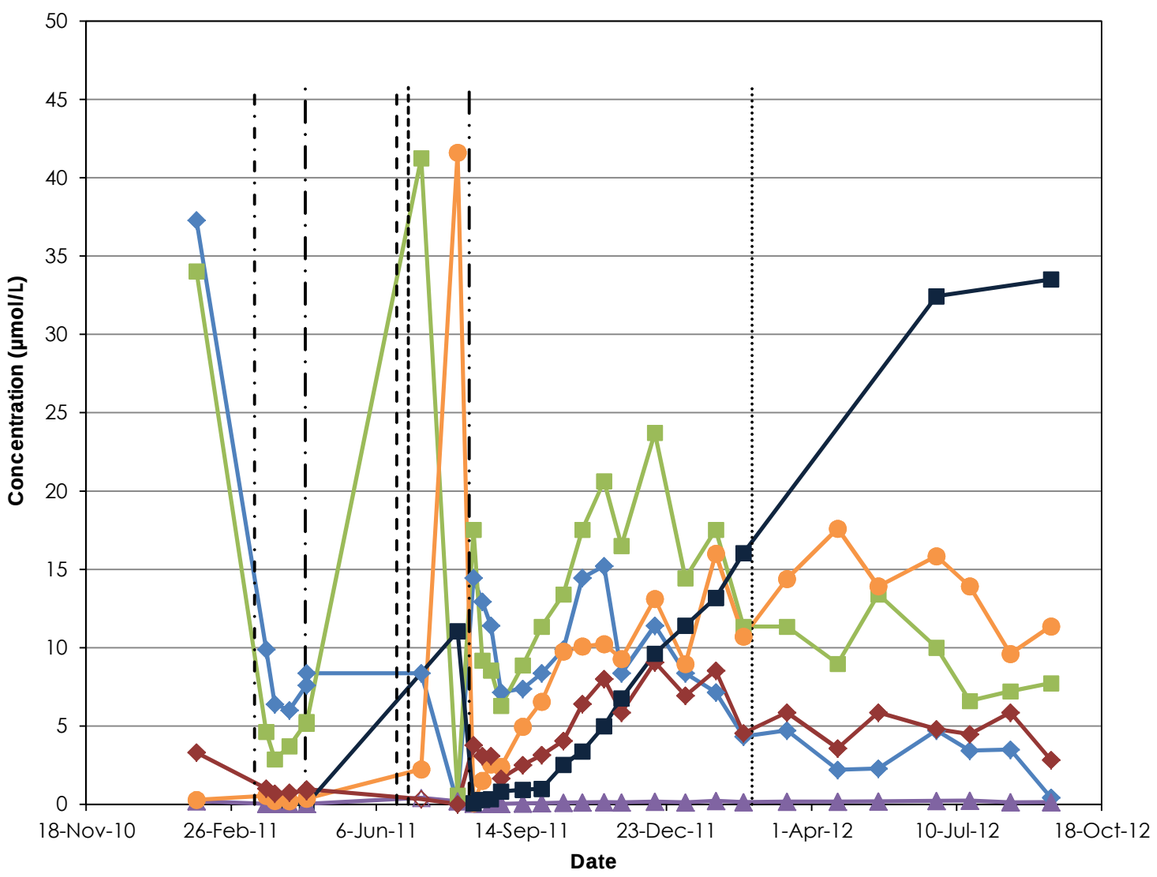
- Distribution of TCE (and CFC113) was non-uniform. Most of the TCE mass was found at BW0001 and RW0007, suggesting there may have been DNAPL in that portion of the demonstration area, but not uniformly around the extraction well, so that the pumped groundwater represents a blend of water that passed through a source zone where contact with residual DNAPL was possible, and other water that came from/through other portions of the demonstration area(s) where there was little TCE NAPL to contact.

The lower zone did experience an increase in total VOC mass discharge at the extraction well. The concentration trend is presented in Figure 3b. This figure shows that the increasing total VOC mass in extracted groundwater was due to increasing amounts of TCE degradation products. This is also illustrated by the extent of dechlorination calculation shown in Figure 4b.

3a) RW0007



3b) RW0008



TCE cDCE tDCE VC CFC113 Ethene

Notes:
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

- Start Baseline Recirculation
- End Baseline Recirculation
- Start nBA Injection
- End nBA Injection
- Start Main Recirculation
- Start Interim Measure Recirculation

Volatile Organic Compound Time Trends
RW0007 & RW0008
Launch Complex 34, Cape Canaveral, FL

Geosyntec consultants

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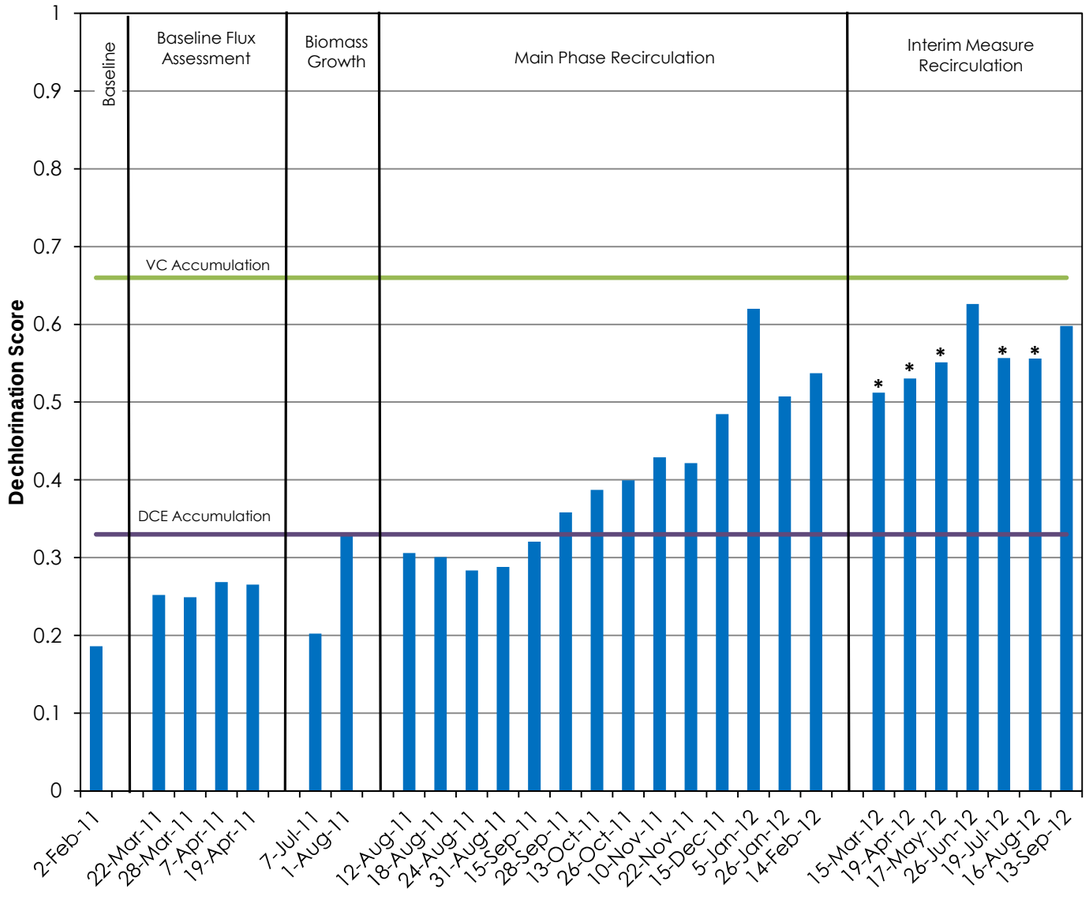
Figure **3**

P:\PRJ\Projects\TR0272 - ESTCP_PED\04 ESTCP Reporting\2.1 Final Technical Report\03 FIGURES\[Figure 3a&b.xls]Fig 3a_b

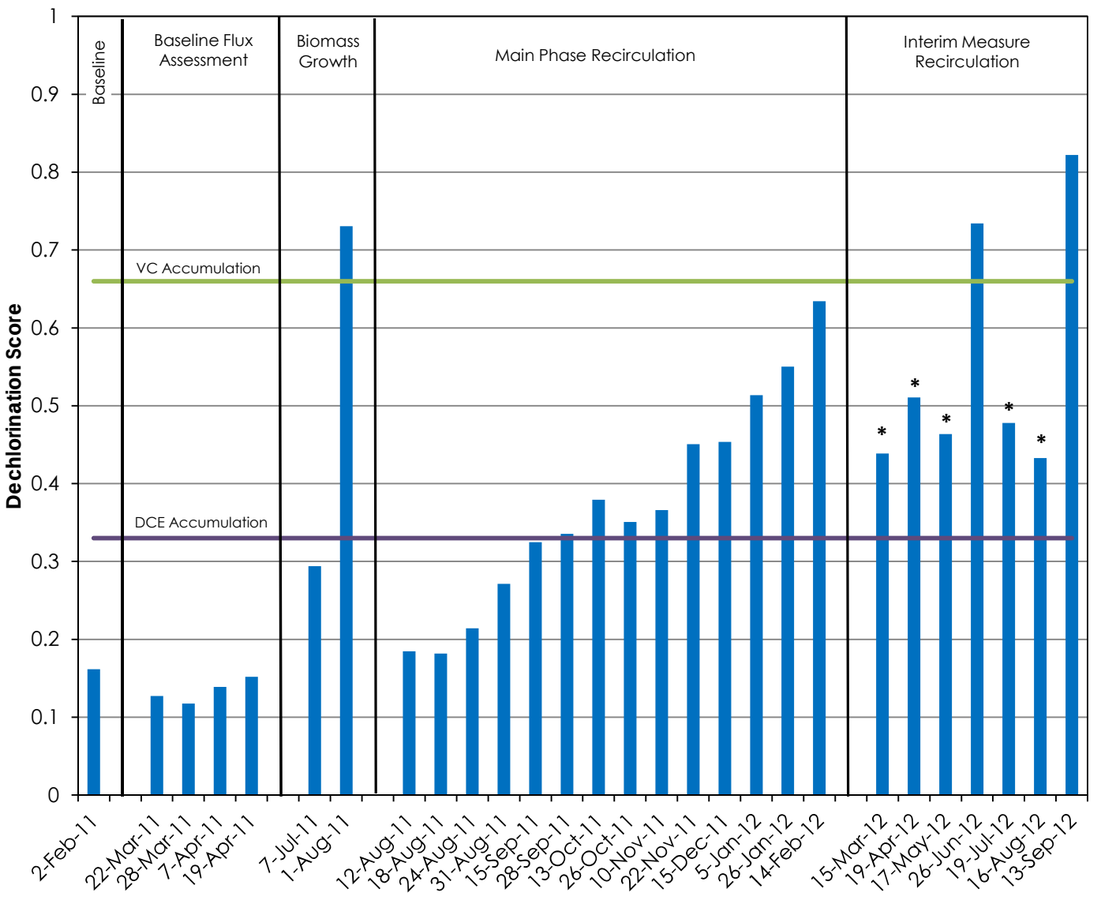
4a) RW0007



* - no analysis for ethene, so dechlorination score shown is artificially low

Dechlorination Score (%) = $(1 - \frac{3[TCE]+2[cDCE]+2[tDCE]+[VC]}{3([TCE]+[cDCE]+[tDCE]+[VC]+[ethene])}) \times 100$

4b) RW0008



* - no analysis for ethene, so dechlorination score shown is artificially low

Dechlorination Score (%) = $(1 - \frac{3[TCE]+2[cDCE]+2[tDCE]+[VC]}{3([TCE]+[cDCE]+[tDCE]+[VC]+[ethene])}) \times 100$

Extent of Dechlorination
RW0007 & RW0008
Launch Complex 34, Cape Canaveral, FL

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Figure **4**

P:\PK\Projects\180272 - ESTCP_PED\04 ESTCP Reporting\v3 Final Technical Report\03 FIGURES\[Figure 4a&b.xlsx]Fig 4a_b

3.8 QUANTITATIVE PERFORMANCE OBJECTIVE: IMPROVED EFFICIENCY OF ELECTRON DONOR UTILIZATION

Since PEDs partition into residual DNAPL, and then partition back into groundwater along with VOCs as they dissolve from the NAPL-phase, the electron donor may be preferentially utilized by dechlorinating bacteria. Hence, a greater proportion of the amended PED was expected to be used to support reductive dechlorination of VOCs rather than untargeted reactions (e.g., methane production).

The efficiency of electron donor utilization was assessed using the groundwater concentrations of VOCs, electron donors, breakdown products, and DHGs over time. The parent donor compound, nBA, along with its breakdown products (nBuOH, acetate, and other VFAs), were monitored, in addition to the VOCs and their breakdown products, plus other compounds that may have formed, such as methane, so that a detailed understanding of the donor consumption pathways was ascertained.

The objective would be considered met if the 'utilization ratio' was greater for PED than is typically observed with traditional soluble donors. The success criterion would be an observed increase in utilization ratio of 50% or greater relative to the soluble donor system of the prior LC34 study (Battelle, 2004; Hood et al., 2008).

The PED lasted longer than a soluble donor. Several pore volume flushes were completed and if the donor was soluble it would have been extracted from the system. However, determining that the PED was more than 50% better than a soluble donor was not quantitatively determined. In the upper sweep zone significant cDCE was present at the start of the DEM/VAL and so production of cDCE from PED addition was not simply discerned as an increase in cDCE. This was not the case for the LC34 study. There were also elevated concentrations of CFC113 in many of the collected groundwater samples, which can inhibit dechlorination and hence limit confirmation of the objective. Nevertheless, the PED can be considered similar to other long term electron donors (e.g., emulsified vegetable oils) over the benefits of soluble donors (e.g., lactate or ethanol). Therefore, quantification of the 50% improvement of the PED over soluble donor utilization was not definitive, but we have evidence that it should be an improvement over soluble donors and possibly as effective as emulsified vegetable oil donors.

3.9 QUANTITATIVE PERFORMANCE OBJECTIVE: REDUCTION IN DNAPL MASS IN THE SOURCE AREA

One goal of source zone bioremediation is to reduce the amount of DNAPL remaining in the source area, to reduce the expected time for clean-up. Reduced source mass may also result in reduced VOC loading to the downgradient plume.

Assessment of this objective was based on the baseline and final VOC concentrations in soil and groundwater. If the PED is able to partition effectively into residual DNAPL and this promotes

bioactivity then a decrease in soil VOC concentrations should occur. This may increase groundwater VOC concentrations (in part due to production of daughter products).

Soil samples were collected from the DEM/VAL at four intervals (baseline, post-biomass growth phase and two during recirculation phase). The baseline soil samples were collected from different locations to the remaining three events. Results for each event were averaged together to develop an average soil concentration (see table below) to estimate TCE and cDCE in soils at the locations sampled. There is a decline in the amount of TCE detected over the course of the DEM/VAL, from the end of the Biomass Growth Phase to the end of the Main Recirculation Phase (Month 7) to the end of the Interim Measure Recirculation Phase (Month 13). Note that baseline is quite different because it represents a different set of locations.

Average Soil Concentrations (mg/kg)

	TCE	cDCE
Baseline	3.60	2.35
Post Biomass Growth	21.27	2.89
Post Main Recirculation Phase (Month 7)	13.07	5.83
Post Interim Measure Recirculation Phase (Month 13)	10.23	5.70

The objective was confirmed based on the interpolated VOC mass in the treatment zone assuming sorption is unchanged over the DEM/VAL. There was a significant decline in total volatile organic compound (TVOC) mass, with an estimated 77% decrease over the DEM/VAL.

3.10 QUANTITATIVE PERFORMANCE OBJECTIVE: REDUCE OPERATION AND MAINTENANCE COSTS

A major feature of the PED technology is the reduced frequency of donor replenishment (and the commensurate reduction in application costs), and the shorter remedial timeframes, resulting in lower operation and maintenance (O&M) costs anticipated due to increased rates of DNAPL dissolution. The success of the PED technology depends on the degree to which these reductions in the number of applications and in the cost of operation and maintenance can be realized.

The reduction in operation and maintenance costs was estimated on the basis of the data collected during the DEM/VAL, including the costs for materials, labor and analytical costs. The time of operation relative to operation with a soluble donor was extrapolated using apparent DNAPL dissolution rates to estimate remedial timeframe. The laboratory experiments (see Section 5.3) and the field observed longevity (section 5.7) were used to estimate the frequency of re-amendment, to estimate costs over the lifetime of the remedy.

The performance objective was generally confirmed. The PED remained longer in the groundwater compared to a simple soluble donor (e.g., lactate) and promoted dechlorination. After 8 months of recirculation there was still enough residual organic carbon to promote bioactivity. On this basis we can conclude that the donor lasted longer than estimated, with no

significant biofouling issues and hence less frequent donor addition and maintenance with the PED over a soluble donor. Given this it would be likely that the PED will provide a shorter remedial timeframe but it is not exactly known if this will be a cost savings of 25% or more. At the end of the DEM/VAL VOC mass remained in parts of the test area and the time to completely treat remaining VOCs was not known.

4 SITE DESCRIPTION

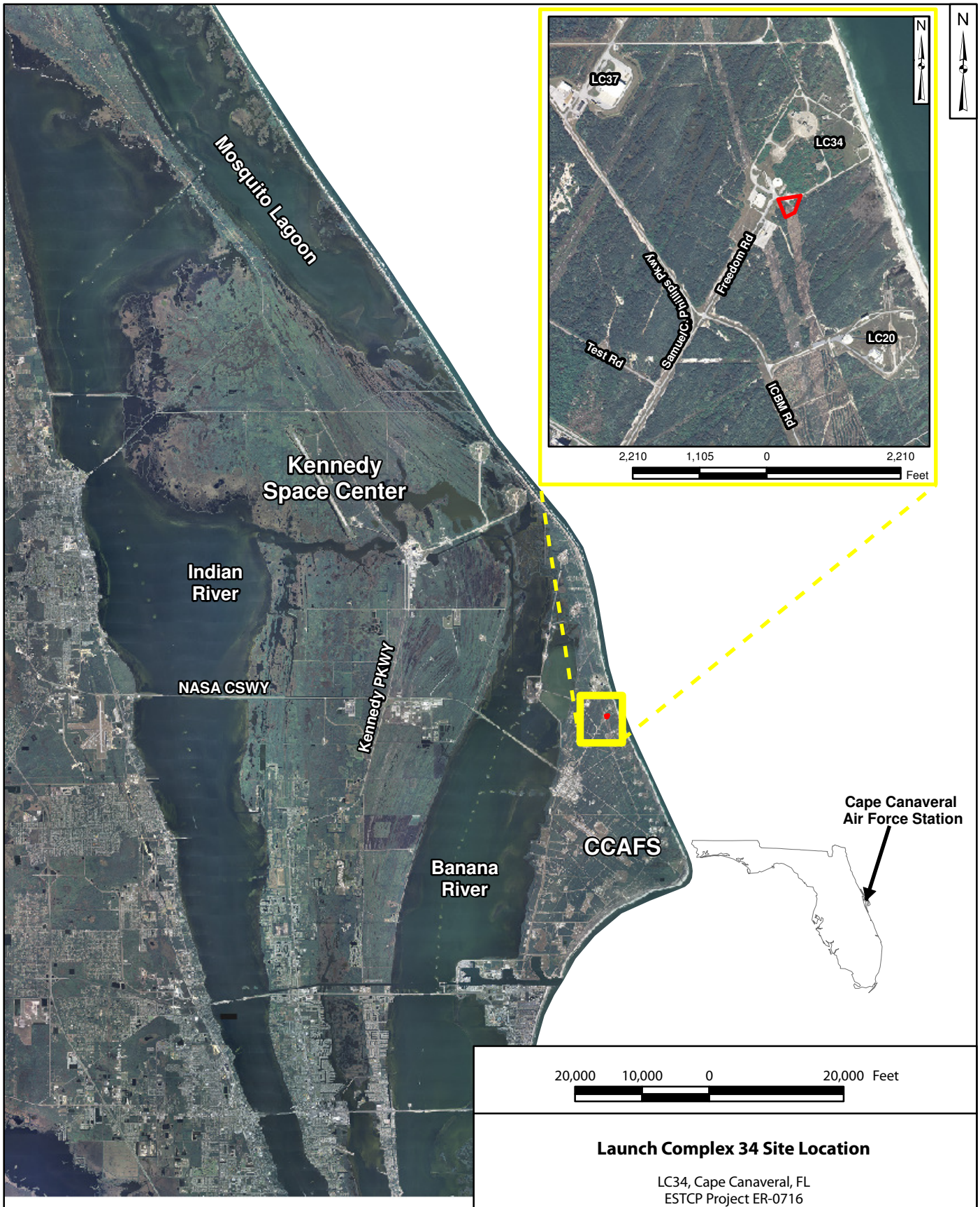
4.1 SITE LOCATION AND HISTORY

Hot Spot 1 is located at LC34 on CCAFS on the east-central Atlantic coast of Florida in Brevard County (Figure 5). The site is located east of the former ESB as shown on Figure 6. Prior to development, LC34 consisted of relict sand dunes and interdunal swales typical of barrier island depositional environments.

A full description of the site history, operations, investigations, and analytical results is detailed in the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report (NASA, 1999), RFI Addendum Report (NASA, 2003), and the Corrective Measures Study (CMS) Report (NASA, 2007).

The launch complex was designed to support NASA's Saturn 1 and Saturn 1B program during Project Apollo. Construction started on LC34 in June 1959, and NASA accepted the site from the contractor in January 1962. Four Saturn 1 and three Saturn 1B vehicles were launched from LC34 between 27 October 1961 and 12 October 1968. Launch operations at LC34 included the storage, transport, and use of nitrogen, helium, liquid oxygen (LOX), RP-1 fuel (modified kerosene fuel), liquid hydrogen, hydrazine, and nitrogen tetroxide. Helium was used as a mixing agent in the LOX tanks of the booster rockets. Nitrogen was used for purging fuel and LOX lines, isolating engine and instrument compartments, and operating certain pneumatic components. RP-1 and LOX were used to fuel the Saturn rockets, and hydrogen, hydrazine, and nitrogen tetroxide were used aboard the various spacecraft for steering purposes. Historical records suggest that workers flushed rocket engines on the launch pad and conducted precision cleaning of spaceflight hardware in the ESB with TCE. A significant amount of solvents were likely disposed of into drains within the ESB and a grated trench system, located adjacent to the northwest side of the ESB that discharged to the sandy soil outside of the ESB. No records regarding the quantities of TCE used at the site were available.

Following the launch of Apollo 7 in 1968, the Complex was held in standby status for possible use in the Skylab program. The launch complex was taken out of service in November 1971, and the service structures along with operational equipment were scrapped in April 1972. However, the majority of the on-site buildings and structures were abandoned-in-place. Native and invasive vegetation and trees overgrew the majority of the site, with dense, wooded areas surrounding the site. The Complex was declared part of the Man In Space National Historic Landmark in 1984. NASA retained ownership of the Complex until 1994 when the land and structures were given back to the Air Force with the exception of the ESB. NASA continued to use this facility as office space until 1998 when remediation pilot demonstrations were initiated.



Legend

Hot Spot 1 Area

Launch Complex 34 Site Location

LC34, Cape Canaveral, FL
ESTCP Project ER-0716

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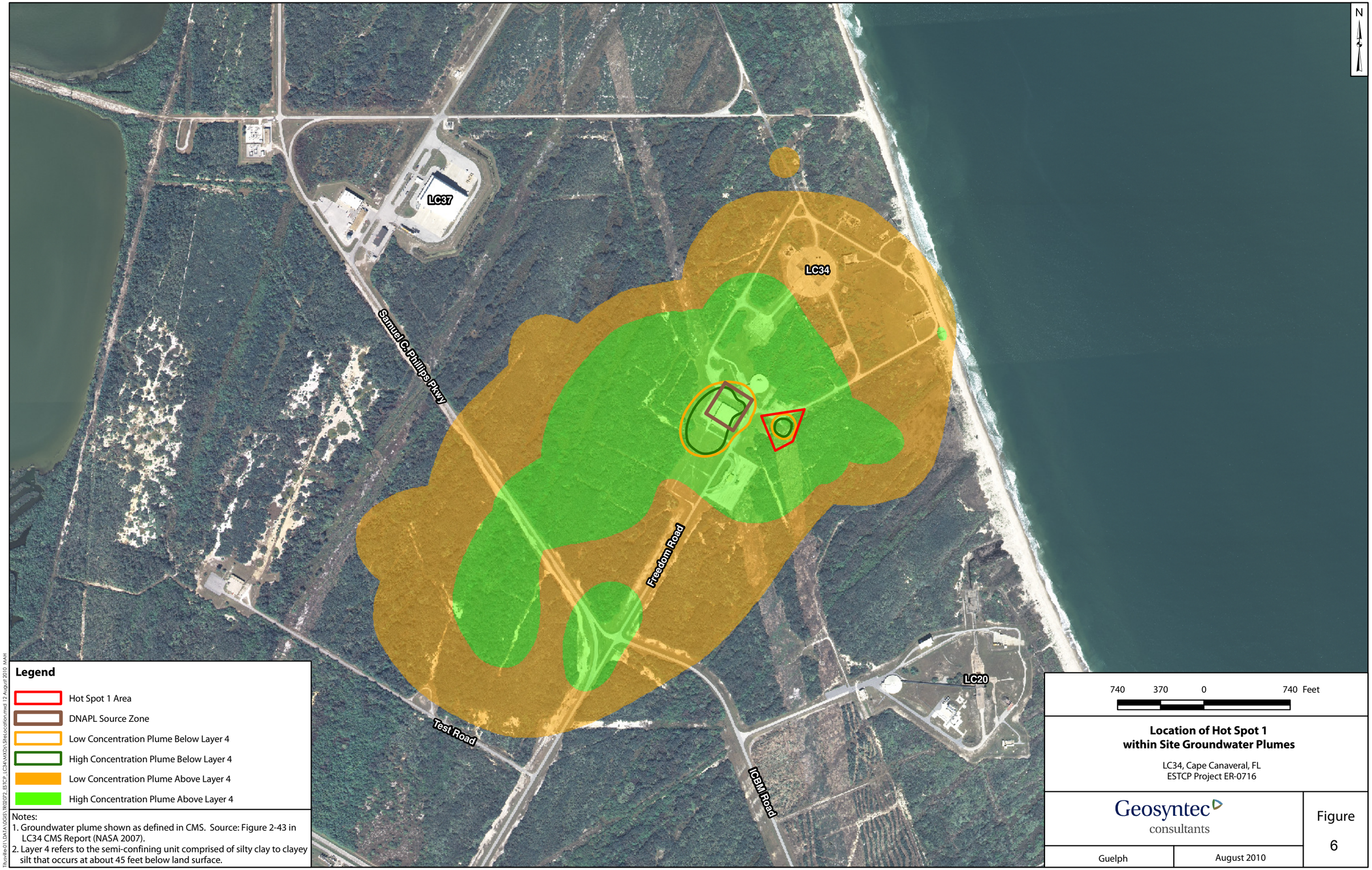
Figure 5

Titusville-01\DATA\GIS\TR02072_ESTCP_LC34\MXDs\SiteLocation.mxd 12 August 2010 MAH


N
LC37
LC34
LC20
Samuel C. Phillips Pkwy
Freedom Road
Test Road
ICBM Road
Legend
Hot Spot 1 Area
DNAPL Source Zone
Low Concentration Plume Below Layer 4
High Concentration Plume Below Layer 4
Low Concentration Plume Above Layer 4
High Concentration Plume Above Layer 4
Notes:
1. Groundwater plume shown as defined in CMS. Source: Figure 2-43 in LC34 CMS Report (NASA 2007).
2. Layer 4 refers to the semi-confining unit comprised of silty clay to clayey silt that occurs at about 45 feet below land surface.
740 370 0 740 Feet
Location of Hot Spot 1
within Site Groundwater Plumes
LC34, Cape Canaveral, FL
ESTCP Project ER-0716
Geosyntec consultants
Guelph
August 2010
Figure
6
Titusville-01\DATA\GIS\1R02072_ESTCP_LC34\MXDs\SiteLocation.mxd 12 August 2010 MAH

Previous investigations (RFI and CMS activities) indicated that the principal groundwater contaminants at LC34 included TCE and its dechlorination products, cDCE, *trans*-1,2-dichloroethene (tDCE), and VC. These impacts were caused by a significant release of TCE in the area of the ESB during the operational period from the late 1950's to 1968. It is estimated that mass remaining under the slab of the former ESB building is approximately 90,000 lbs of TCE. The groundwater impacts of VOCs present at concentrations exceeding their Groundwater Cleanup Target Levels (GCTLs) encompass an area of approximately 330 acres and extend from approximately 15 to 80 ft BLS. In the CMS (NASA, 2007) the groundwater impacts were categorized as follows (Figure 6):

- the DSZ: The DSZ includes the area within a "box" which encompasses the 100 milligram per kilogram (mg/kg) iso-concentration contour;
- the high concentration plume (HCP): The HCP includes the area of impacted groundwater with TCE, cDCE, tDCE, and VC concentrations greater than the Natural Attenuation Default Concentrations (NADCs) and less than 100 mg/kg TCE (i.e., beyond the DSZ); and
- the low concentration plume (LCP): The LCP includes the area of impacted groundwater wherein concentrations are greater than the individual GCTL for TCE, cDCE, tDCE, and VC, and less than the NADCs.

Hot Spot 1 is a small TCE source area separate from the VOC mass beneath the ESB (refer to Figure 6 and Figure 7). The TCE plume here has been generally delineated to concentrations in groundwater greater than the Florida Department of Environmental Protection (FDEP) NADC of 300 µg/L. Below this level, delineation is complicated by the presence of the larger HCP. Similarly, the cDCE and VC contributions cannot be readily quantified due to comingling of the plumes. A probable source of the Hot Spot 1 area TCE mass has been identified as a drum storage area in an old air photo from 1969. The area delimited by the 300 µg/L TCE isopleth is about 4,000 square feet (ft^2), while the zone of greatest TCE concentration, within the 30,000 µg/L isopleth, is about 400 ft^2 in area (see Figure 12).

Hot Spot 1 Area Site Map

LC34, Cape Canaveral, FL
ESTCP Project ER-0716

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Figure 7

I:\Jville-01\DATA\GIS\TR\2072_ESTCP_LC34\MXDs\HotSpot1_SiteMap.mxd 05 August 2010 MAH

4.2 SITE GEOLOGY AND HYDROGEOLOGY

4.2.1 Lithology

The shallow aquifer system at the site, which includes undifferentiated deposits of Pliocene, Pleistocene and Recent Age, consists primarily of tan to gray, medium to very fine-grained sands with varying amounts of shell fragments. This lithology is present from land surface to a depth of approximately 45 ft BLS. In the vicinity of the Launch Pad Complex, which is at a higher surface elevation than the surrounding area, this lithology is present at greater depths. A very fine-grained yellowish gray to light olive gray sand stratum containing a significant amount of silt is present from approximately 25 to 30 ft BLS; this stratum is a minimum of 5 ft in thickness. The first hydrogeologic semi-confining unit (aquitard) is present at an approximate depth of 45 ft BLS and has a typical thickness of less than 1 ft to 3 ft. Abundant shell fragments overlie the aquitards, which consists of a thin layer of light brownish gray to light olive gray silty clay to clayey silt with minor amounts of sand and shell fragments. Geotechnical analyses of five Shelby tube samples of this stratum in the vicinity of the ESB reported an average vertical hydraulic conductivity of 1.67×10^{-4} feet per day (ft/day) (5.89×10^{-8} centimeters per second [cm/sec]) (NASA, 1999).

The stratum beneath the aquitard consists primarily of light gray, medium to coarse-grained sands and silts with abundant shell fragments to a depth of 60 ft BLS. This stratum is underlain by homogeneous, light olive gray, coarse to fine sands ("salt and pepper" sand) from approximately 60 to 80 ft BLS. Light olive gray to yellowish gray, silty sand to clayey sand with abundant white shell fragments are present from 80 to 95 ft BLS. This stratum is underlain by yellowish gray to light gray, fine- to coarse-grained sands with minor amounts of shell fragments from approximately 95 to 118 ft BLS. Green clay with minor amounts of sand, phosphate nodules, and limestone fragments, are present at a depth of approximately 118 ft BLS. This represents the top of the Tamiami Formation equivalent, which extends to 125 ft BLS. The stratum also consists of yellowish gray clayey sand to clay. The Hawthorn Group is encountered at approximately 125 ft BLS and consists of yellowish gray to light olive gray clayey sand to dolosilt with up to 20% phosphate. This lithology persists to at least 140 ft BLS. Geotechnical analysis of a sample from the clay stratum indicates a vertical hydraulic conductivity of 5.1×10^{-4} ft/day (1.80×10^{-7} cm/sec) (NASA, 2003). The hydrogeologic zones encountered beneath the site are presented on Figure 8.

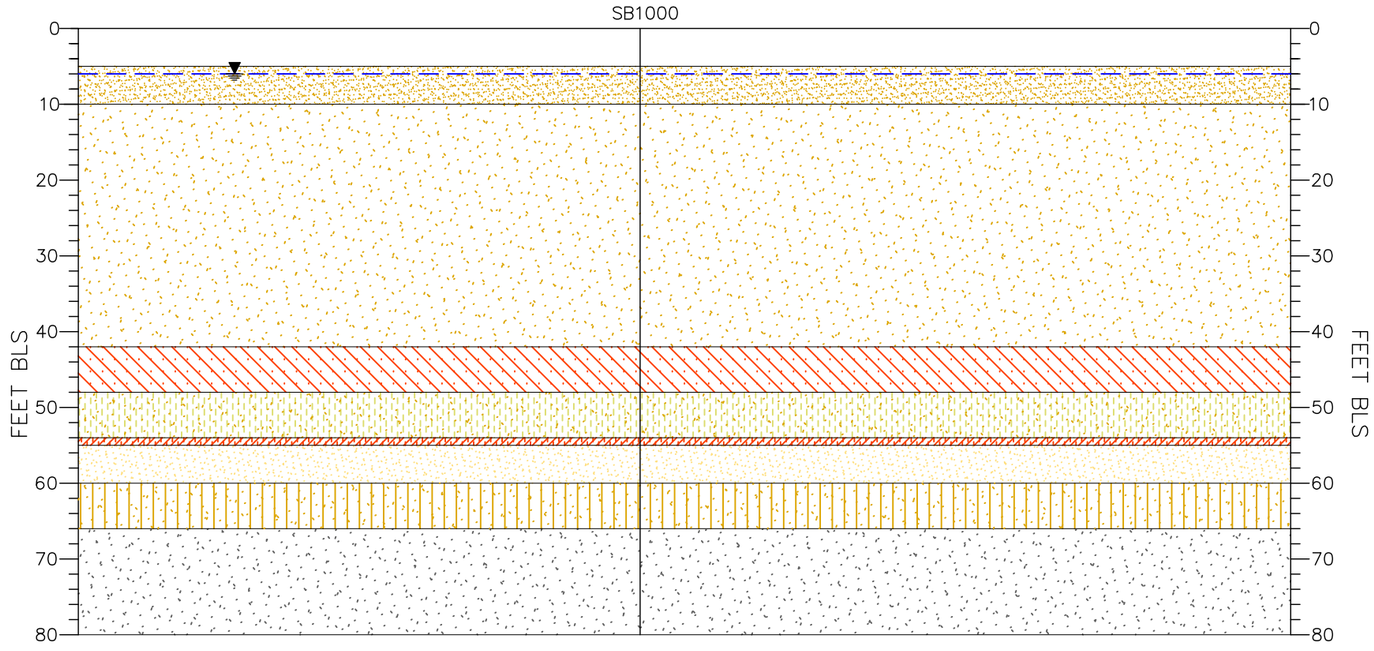
The site geology can be summarized as follows:

- Land surface to 45 ft BLS: tan to gray, medium to very fine-grained sands with varying amounts of shell fragments, with a hydraulic conductivity of 3ft/day in the 30 to 45 ft BLS interval;

- 45 to 48 ft BLS (thickness varies): semi-confining unit comprised of silty sand to sandy clay with minor amounts of sand and shell fragments with a hydraulic conductivity of 10^{-3} to 10^{-4} ft/day;
- 48 to 60 ft BLS: medium light gray, medium to coarse-grained silty sand with abundant shell fragments with a hydraulic conductivity of approximately 2.8 ft/day (based upon pneumatic slug testing in 2009); and
- 60 to 80 ft BLS: homogeneous light olive gray, coarse to fine sands with a hydraulic conductivity of approximately 7.5 ft/day.

A continuous soil core was collected, using a sonic method, in the middle of the Hot Spot 1 area (SB1000, Figures 4 and 6). The core was consistent with general site lithology, with the exception of a second clay layer identified from 54 to 55 ft BLS; a generalized lithologic cross section of the Hot Spot 1 area based on that core is shown on Figure 4 and summarized as follows:

- Surface to 5 ft BLS was hand-cleared and thus not logged;
- 5 to 10 ft BLS: gray, tan, brown fine sand with shell fragments;
- 10 to 42 ft BLS: gray fine sand with shell fragments;
- 42 to 48 ft BLS: gray silty sand and silty clay with shell fragments;
- 48 to 54 ft BLS: gray fine sand with shell fragments and silt;
- 54 to 55 ft BLS: gray silty clay;
- 55 to 60 ft BLS: black, white gray medium sand;
- 60 to 66 ft BLS: silty, fine sand and fine sand with silt and shell fragments; and
- 66 to 80 ft BLS: gray and black medium sand with shell fragments.



LEGEND

- GRAY, TAN, BROWN FINE SAND (SP) WITH SHELL FRAGMENTS
- GRAY FINE SAND (SP) WITH SHELL FRAGMENTS
- GRAY SILTY SAND AND SILTY CLAY (CL) WITH SHELL FRAGMENTS
- GRAY FINE SAND (SP) WITH SHELL FRAGMENTS AND SILT
- GRAY SILTY CLAY (CL)
- BLACK, WHITE, GRAY MEDIUM SAND (SW)
- SILTY, FINE SAND AND FINE SAND (SM) WITH SILT AND SHELL FRAGMENTS
- GRAY AND BLACK MEDIUM SAND (SW) WITH SHELL FRAGMENTS
- SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE (APPROXIMATE)

0 5 10 FEET
HORIZONTAL SCALE

0 10 20 FEET
VERTICAL SCALE

NOTES:

1. LITHOLOGY DESCRIPTION DEVELOPED FROM DATA COLLECTED AT SOIL BORING SB1000, WHICH IS LOCATED AT LC34–IW0076 IN FIGURE 3.
2. LITHOLOGY OF UPPERMOST FIVE FEET OF SOIL WAS NOT LOGGED, SINCE SOIL BORING WAS INITIALLY HAND–AUGERED TO A DEPTH OF FIVE FEET.

Generalized Lithology Cross Section at Hot Spot 1

Hot Spot 1, LC34, Cape Canaveral, FL
ESTCP Project ER-0716

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Figure 8

P:\CADD_Geosyntec Branch\Titusville Office\NASA\TR0272.03\0552B106-FIG 4.dwg

4.2.2 Site Hydrology

Groundwater at the site is generally encountered at about 5 ft BLS. In the shallow island aquifer system found at LC34, surface water bodies influence groundwater flow. Two large water bodies, the Atlantic Ocean and the Banana River are located approximately 0.25 miles to the east and 1 mile west of the site, respectively. Period of record water levels indicate the primary direction of groundwater flow is directed to the coastal margins of the site with the highest recorded water levels near the area of the former ESB. At Hot Spot 1, which is south of the launch pad, groundwater flow in the shallow aquifer is predominantly to the east, toward the Atlantic Ocean. Groundwater gradients are relatively flat and in general, groundwater flow is sluggish. Groundwater elevations show some tidal influence; apparent flow reversals may occur depending on tide stage at time of groundwater gauging. Groundwater potentiometric surface maps for the shallow aquifer from the 2008 and 2009 Annual Groundwater Monitoring Reports (NASA, 2009; NASA, 2010) are shown in Figure 9.

4.2.3 Groundwater Geochemistry

Samples from selected wells at LC34, including IW0002I and IW0002D have been analyzed periodically for a suite of natural attenuation indicator parameters. Geochemical conditions in Hot Spot 1 appear to be consistent with anaerobic microbial activity, with relatively reducing redox conditions and elevated concentrations of ethane (and methane). There is about 18 mg/L of sulfate present in the groundwater. These conditions are consistent with the concentrations of cDCE and VC, which indicate that microbial reductive dechlorination is active at the site.

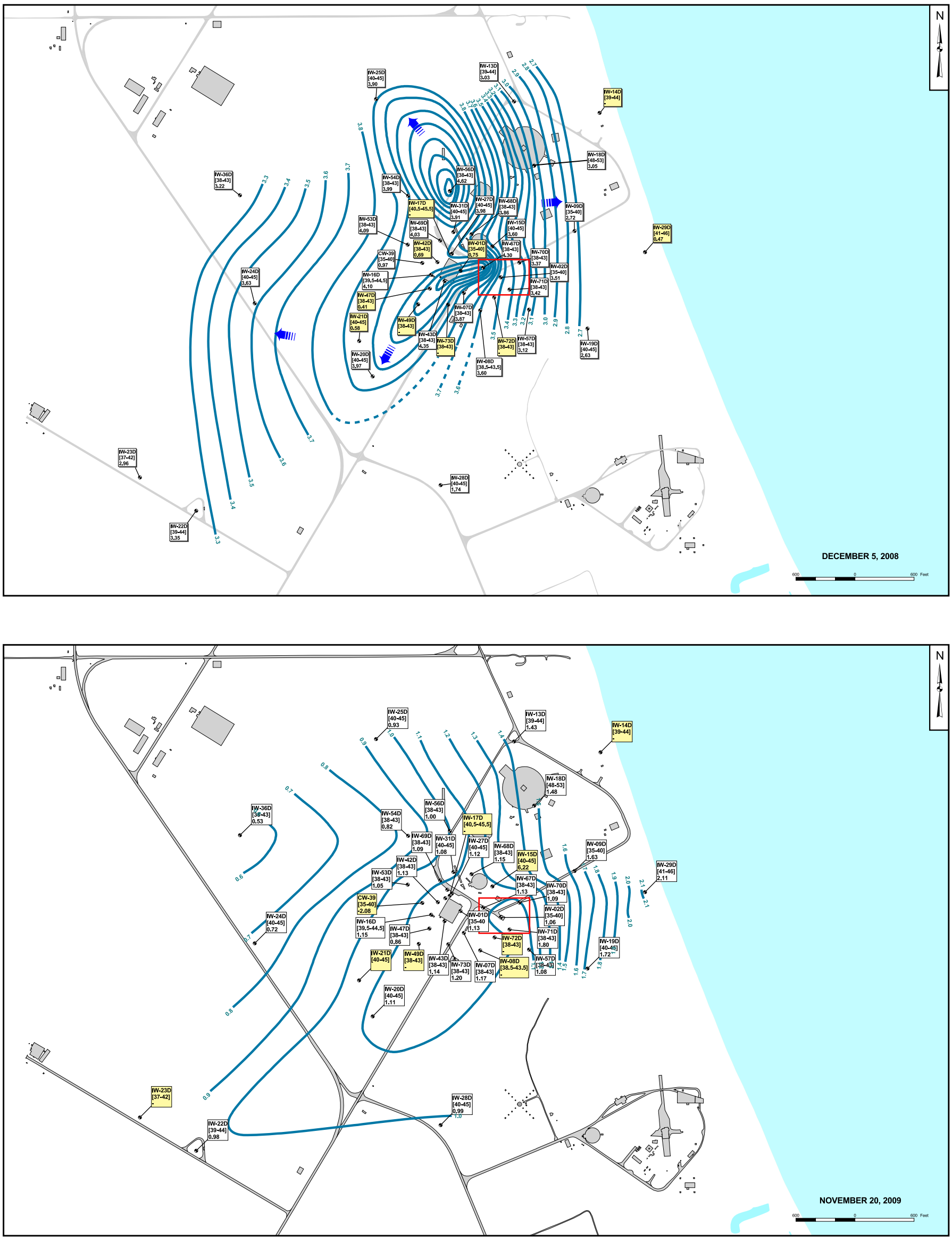
4.3 CONTAMINANT DISTRIBUTION

The Hot Spot 1 source mass, while a distinct source from that delineated beneath the ESB, is situated within the large VOC plume around the ESB. As a result, there are elevated levels of cDCE and VC that may not originate from the TCE in Hot Spot 1. The Hot Spot 1 TCE plume has been delineated to a concentration of 300 µg/L; below this concentration the plumes are difficult to separate on the map due to comingling of the plumes. For the breakdown products (cDCE and VC), separation is not possible. Although no other VOCs were identified in groundwater during prior routine monitoring of the existing monitoring wells, CFC113 was present at several locations in the upper aquifer at concentrations up to 130,000 µg/L.

VOC impacts in the Hot Spot 1 Area were delineated from 2008 to 2009 through a series of direct-push groundwater sampling events, a membrane interface probe (MIP) investigation, saturated zone soil sampling and installation and sampling of a deep monitoring well (screen interval of 70 to 80 ft BLS). MIP results were used in conjunction with the concentration data to define the vertical interval of VOC-impacted groundwater, which was deemed to be the 30 to 60 ft BLS interval for the PED DEM/VAL.

The CMS for the site (NASA, 2007) presents theoretical soil concentrations for TCE-DNAPL saturation; a value of about 300 mg/kg is considered representative of NAPL-phase TCE, using literature values for TCE solubility and organic carbon partition coefficient (K_{oc}), assumed values of bulk density and porosity, and measured values of the fraction of organic carbon (f_{oc}). The maximum value measured, 56.2 mg/kg^{dry}, which is equivalent to 42.7 mg/kg in the bulk, is about 14% of the theoretical threshold value.; hence, DNAPL is inferred to be present in the plot based on this result together with the groundwater concentrations.

The groundwater concentrations are indicative of a TCE-NAPL source: the source has been there for over 40 years and concentrations of TCE are still about 30,000 µg/L based on groundwater samples from the monitoring wells and DPT samples in the middle of the Hot Spot 1 area.



Legend

- Monitoring Well Location
- Piezometer Location
- Potentiometric Contour in feet above MSL (0.1 foot interval) (Dashed Where Inferred)
- Groundwater Flow Direction
- Hot Spot 1 Area

PZ-01 ← Local Designation
[17-22] ← Screen Interval in feet below ground surface
2.62 ← Groundwater Elevation in feet above MSL

IW-12S [0.83] Anomalous Water Level - Not Used For Contouring

Notes:

1. Maps from LC34 Annual Groundwater Monitoring Reports (NASA 2009, 2010).
2. Potentiometric surface applies to the 30 to 45 ft BLS interval, referred to as Layer 3 or the "D" zone.

Groundwater Potentiometric Surface Maps
Launch Complex 34, Cape Canaveral
ESTCP Project ER-0716

Geosyntec consultants

Guelph | August 2010

Figure **9**

Potentiometric Surface Maps.ai

5 TEST DESIGN

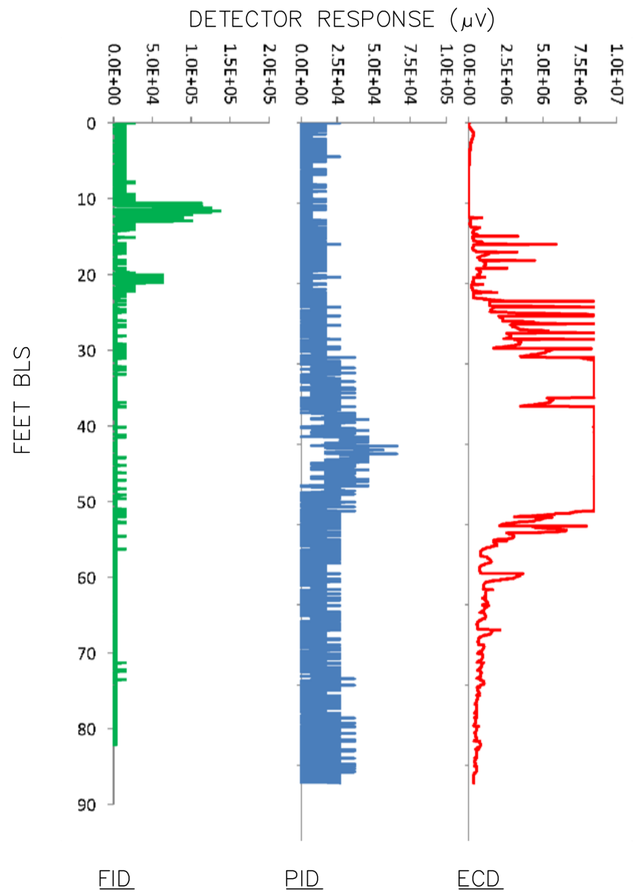
5.1 CONCEPTUAL EXPERIMENTAL DESIGN

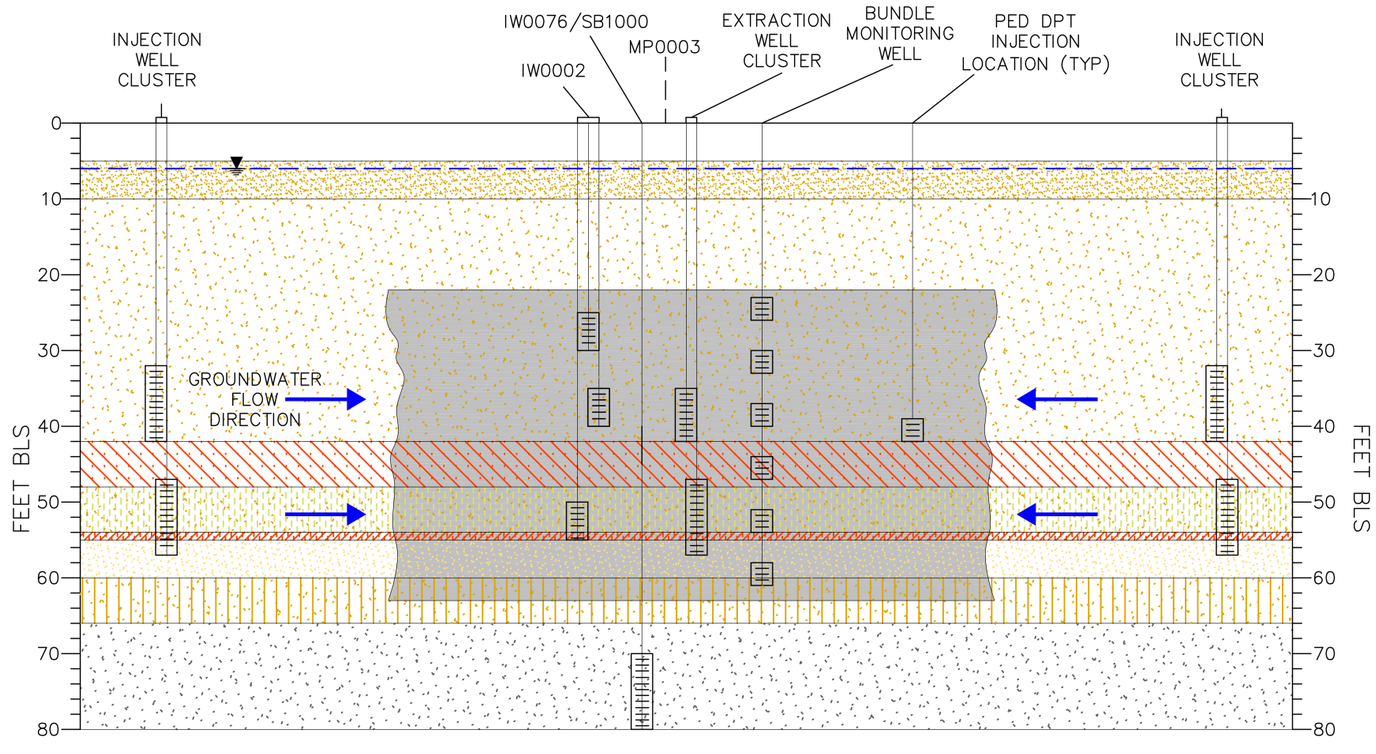
The objective of the this project was to DEM/VAL the application of a PED at a DNAPL source zone site to improve the biologically-enhanced dissolution rate of DNAPL over that which can be achieved with soluble, non-partitioning electron donors. The overarching goal was to demonstrate that PED application offered increased bioremediation efficiency and decreased implementation costs.

The PED technology was demonstrated at a source zone hot spot wherein TCE DNAPL is associated with a silty sand/silty clay horizon at about 42 to 48 ft BLS and TCE concentrations up to 141,000 µg/L had been reported. Figure 10 shows a cross section of the demonstration area. The hot spot was amended with PED nBA above, within and below this low permeability horizon. Two sweep zones, one above and one below the clay horizon were separately instrumented and operated, providing two data sets with which to evaluate the performance of the PED technology. Each sweep zone was instrumented with a single central extraction well, from which integrated groundwater samples were collected routinely to monitor the average concentration of various dissolved constituents over time. Extracted groundwater was returned to the aquifer through a set of ten groundwater injection wells on the perimeter of the TCE plume. At each of five injection locations, a pair of injection wells was installed, above and below the clay horizon, to help create an inward hydraulic gradient and promote horizontal flow across the top and base of the clay horizon.

Each extraction well operated, at a relatively low flow rate, to maintain an inward hydraulic gradient and collect representative groundwater from the aquifer on either side of the clay horizon. The extracted groundwater was analyzed for VOCs to establish the baseline flux of VOCs. Once baseline conditions were established, the zone was amended with electron donor (nBA) and conservative tracers (bromide and iodide) using DPT injection to deliver the amendments throughout the target zone. This approach delivered the amendment solution throughout the pore volume of the plot all at once, rather than relying on advective transport in a recirculation mode, and allowed the amendments to be preferentially delivered to the clay layer and the portions of the overlying and underlying aquifers where residual DNAPL may occur. A shut-in period, with no groundwater extraction, was then observed, to allow native microbes to acclimate to the nBA and allow biomass to become established within the demonstration area. Following this, soil and groundwater samples were collected to establish the distribution of electron donor and tracer within each demonstration area.

MP0003 RESULTS





LEGEND

- GRAY, TAN, BROWN FINE SAND (SP) WITH SHELL FRAGMENTS
- GRAY FINE SAND (SP) WITH SHELL FRAGMENTS
- GRAY SILTY SAND AND SILTY CLAY (CL) WITH SHELL FRAGMENTS
- GRAY FINE SAND (SP) WITH SHELL FRAGMENTS AND SILT
- GRAY SILTY CLAY (CL)
- BLACK, WHITE, GRAY MEDIUM SAND (SW)
- SILTY, FINE SAND AND FINE SAND (SM) WITH SILT AND SHELL FRAGMENTS
- GRAY AND BLACK MEDIUM SAND (SW) WITH SHELL FRAGMENTS
- PED AMENDMENT ZONE
- SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE (APPROXIMATE)
- SCREENED INTERVAL

0 5 10 FEET
HORIZONTAL SCALE

0 10 20 FEET
VERTICAL SCALE

NOTES:
1. BLS INDICATES BELOW LAND SURFACE.
2. MP INDICATES MEMBRANE INTERFACE PROBE.
3. FID INDICATES FLAME IONIZATION DETECTOR.
4. PID INDICATES PHOTOIONIZATION DETECTOR.
5. ECD INDICATES ELECTRON CAPTURE DETECTOR.
6. PED PARTIONING ELECTRON DONOR.
7. MV INDICATES MICROVOLTS.
8. DPT INDICATES DIRECT PUSH TECHNOLOGY.
9. LITHOLOGY DESCRIPTION DEVELOPED FROM DATA COLLECTED AT SOIL BORING SB1000.
10. INJECTION WELL CONSTRUCTION DETAILS PROVIDED ON FIGURE B-2 (APPENDIX B).
11. EXTRACTION WELL CONSTRUCTION DETAILS PROVIDED ON FIGURE B-1 (APPENDIX B).
12. BUNDLE MONITORING WELL CONSTRUCTION DETAILS PROVIDED ON FIGURE B-3 (APPENDIX B).
13. CROSS SECTION IS SCHEMATIC; DOES NOT CORRESPOND TO A PARTICULAR SECTION LINE.

Cross-Sectional View of PED Demonstration Layout

Hot Spot 1, LC34, Cape Canaveral, FL
ESTCP Project ER-0716

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Figure 10

P:\CADD_Geosyntec Branch\Titusville Office\NASA\TR0272.03\0552BF01-FIG 10.dwg

Following the biomass growth shut-in period, groundwater extraction was re-initiated, with routine sample collection to assess the concentrations and flux of various compounds. Comparison of concentrations (VOCs, PED, tracers) in groundwater initially and over time extracted from the central wells will assess the "disturbance effect" of direct injection and evaluate the quantity of PED that was taken up by NAPL, sorbed or diffused into secondary porosity of the formation (where the NAPL also likely resides). Trends in the concentrations of various dissolved constituents in extracted water over time were used to understand changes in the flux of VOCs (and amended compounds). Soil sampling was conducted before (baseline delineation) and after the demonstration area was amended, to establish mass distribution within the plots, and again after operation was halted, to assess changes over the DEM/VAL operation and correlate these results with the observed trends in groundwater concentrations.

Both sweep zones were monitored throughout the course of the demonstration (March 2011 to February 2012), to evaluate system performance and evaluate whether laboratory assessment data are useful to predict PED performance under field conditions. The performance was assessed in terms of VOC mass flux enhancement and compared with previous studies using typical, non-partitioning, soluble electron donors such as lactate.

5.2 BASELINE CHARACTERIZATION

VOC impacts in the source zone (Hot Spot 1 Area) were delineated from 2008 to 2009 through a series of direct-push groundwater sampling events, a MIP investigation, saturated zone soil sampling and installation and sampling of a deep monitoring well (screen interval of 70 to 80 ft BLS). Sampling locations are shown in Figure 11. Figure 12 shows TCE concentration isopleths in Hot Spot 1 for the depth interval from 30 to 60 ft BLS. This figure presents dissolved-phase TCE concentrations from both direct-push groundwater grab samples and from permanent monitoring wells prior to the PED DEM/VAL. MIP results were used in conjunction with the concentration data to define the vertical interval of VOC-impacted groundwater, which was deemed to be the 30 to 60 ft BLS interval for the PED DEM/VAL.

Soil samples were collected in the Hot Spot 1 area during sonic drilling to install a deep monitoring well (IW0076, screen interval from 70 to 80 ft BLS) proximal to IW0002D and MIP0003 (refer to Figure 6). Continuous core was collected and logged to a depth of 80 ft BLS. Six discrete saturated zone soil samples (5 g each) were collected to assess TCE concentrations above, in and below the clay confining layer. The results were presented in the Technology Demonstration Plan (TDP); Lebrón and Major, 2011). The TCE mass distribution was consistent with the MIP logs and groundwater data, as shown in Figure 12.

N

LC34-IW0070D1 (65-75)
LC34-IW0070S (1-11)
LC34-IW0070D (38-43)
LC34-IW0067D (38-43)
LC34-IW0067D1 (63-73)
LC34-DPT0188
LC34-DPT0108/MP0007
LC34-DPT0110
LC34-IW0002I (25-30)
LC34-DPT0068/MP0008
LC34-IW0002D (35-40)
LC34-MP0010
LC34-IW0002S (2-12)
LC34-DPT0118
LC34-DPT0111/MP0004
LC34-IW0002D1 (50-55)
LC34-IW0076 (70-80) SB1000
LC34-DPT0067
LC34-MP0005
LC34-DPT0103/MP0003
LC34-DPT0113/MP0006
LC34-DPT0114
LC34-MP0009
LC34-DPT0247
LC34-DPT0246
LC34-DPT0119
LC34-IW0071D (38-43)
LC34-IW0071D1 (65-75)

Legend

- DPT Sampling Location
- MIP Location
- DPT/MIP Sampling Location
- Soil Boring Location
- Monitoring Well Location (showing screen interval (ft BLS))

Notes:
1. ft BLS indicates feet below land surface.
2. MIP indicates Membrane Interface Probe.
3. DPT indicates Direct Push Technology.

40 20 0 40 Feet

Sampling Locations
Hot Spot 1

LC34, Cape Canaveral, FL
ESTCP Project ER-0716

Geosyntec consultants

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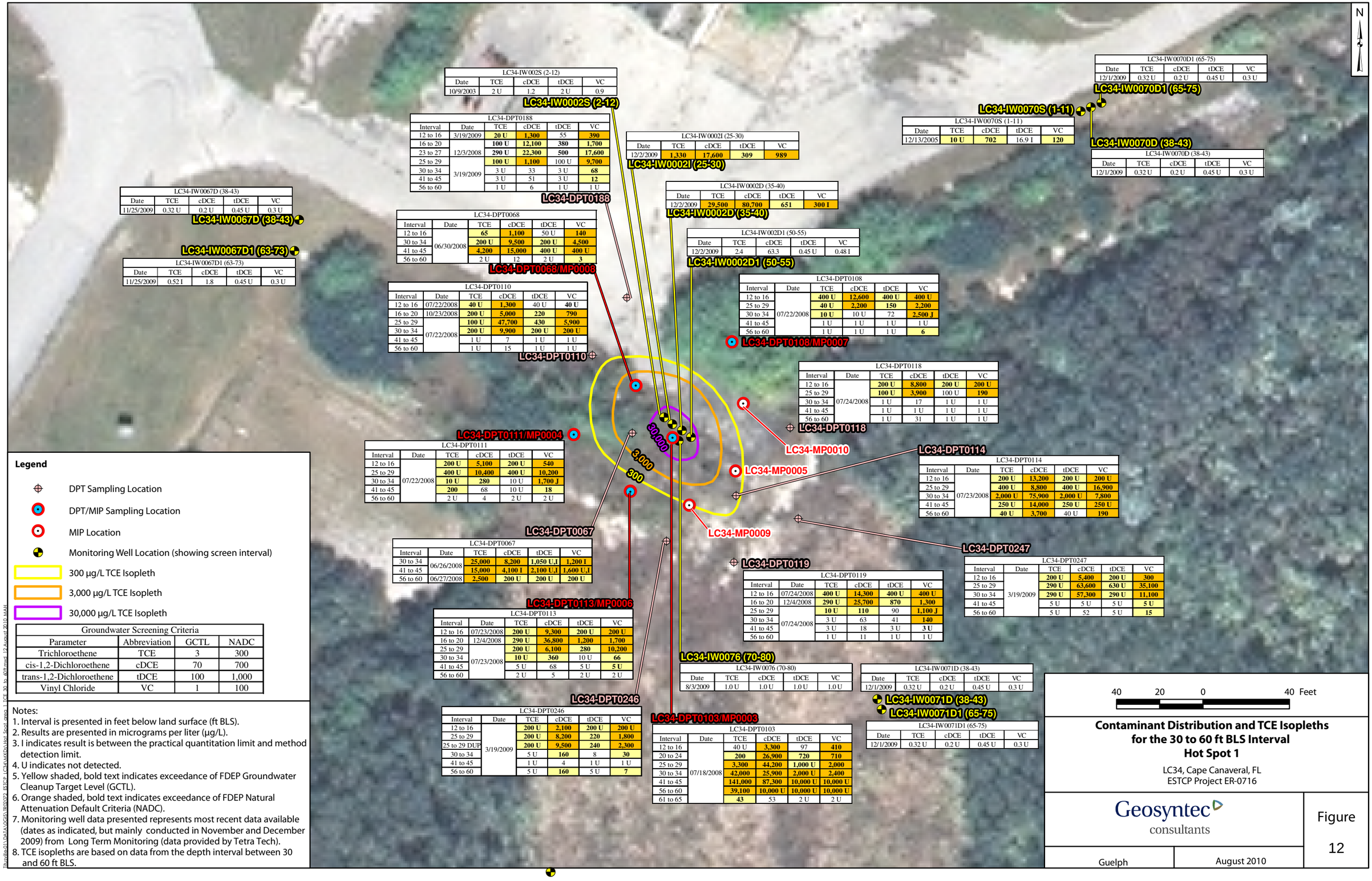
Figure 11

LC34 T:\Auto\e-01\DATA\GIS\LTR\2072 ESTCP LC34\MXDs\Hot Spot_orient 1 LOCS.mxd 03 August 2010 MAH



LC34-IW002S (2-12)

Date	TCE	cDCE	tDCE	VC
10/9/2003	2 U	1.2	2 U	0.9

LC34-DPT0188

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	3/19/2009	**20 U**	**1,300**	55	**390**
16 to 20	12/3/2008	**100 U**	**12,100**	**380**	**1,700**
23 to 27		**290 U**	**22,300**	**500**	**17,600**
25 to 29	3/19/2009	**100 U**	**1,100**	100 U	**9,700**
30 to 34		3 U	33	3 U	**68**
41 to 45		3 U	51	3 U	**12**
56 to 60		1 U	6	1 U	1 U

LC34-IW0002I (25-30)

Date	TCE	cDCE	tDCE	VC
12/2/2009	**1,330**	**17,600**	**309**	**989**

LC34-IW0002D (35-40)

Date	TCE	cDCE	tDCE	VC
12/2/2009	**29,500**	**80,700**	**651**	**300 I**

LC34-IW002D1 (50-55)

Date	TCE	cDCE	tDCE	VC
12/2/2009	2.4	63.3	0.45 U	0.48 I

LC34-IW0070D1 (65-75)

Date	TCE	cDCE	tDCE	VC
12/1/2009	0.32 U	0.2 U	0.45 U	0.3 U

LC34-IW0070S (1-11)

Date	TCE	cDCE	tDCE	VC
12/13/2005	**10 U**	**702**	16.9 I	**120**

LC34-IW0070D (38-43)

Date	TCE	cDCE	tDCE	VC
12/1/2009	0.32 U	0.2 U	0.45 U	0.3 U

LC34-IW0067D (38-43)

Date	TCE	cDCE	tDCE	VC
11/25/2009	0.32 U	0.2 U	0.45 U	0.3 U

LC34-IW0067D1 (63-73)

Date	TCE	cDCE	tDCE	VC
11/25/2009	0.52 I	1.8	0.45 U	0.3 U

LC34-DPT0068

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	06/30/2008	**65**	**1,100**	50 U	**140**
30 to 34		**200 U**	**9,500**	**200 U**	**4,500**
41 to 45		**4,200**	**15,000**	**400 U**	**400 U**
56 to 60		2 U	12	2 U	**3**

LC34-DPT0110

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/22/2008	**40 U**	**1,300**	40 U	**40 U**
16 to 20	10/23/2008	**200 U**	**5,000**	**220**	**790**
25 to 29	07/22/2008	**100 U**	**47,700**	**430**	**5,900**
30 to 34		**200 U**	**9,900**	**200 U**	**200 U**
41 to 45		1 U	7	1 U	1 U
56 to 60		1 U	15	1 U	1 U

LC34-DPT0108

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/22/2008	**400 U**	**12,600**	**400 U**	**400 U**
25 to 29		**40 U**	**2,200**	**150**	**2,200**
30 to 34		**10 U**	10 U	72	**2,500 J**
41 to 45		1 U	1 U	1 U	1 U
56 to 60		1 U	1 U	1 U	**6**

LC34-DPT0118

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/24/2008	**200 U**	**8,800**	**200 U**	**200 U**
25 to 29		**100 U**	**3,900**	100 U	**190**
30 to 34		1 U	17	1 U	1 U
41 to 45		1 U	1 U	1 U	1 U
56 to 60		1 U	31	1 U	1 U

LC34-DPT0111

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/22/2008	**200 U**	**5,100**	**200 U**	**540**
25 to 29		**400 U**	**10,400**	**400 U**	**10,200**
30 to 34		**10 U**	**280**	10 U	**1,700 J**
41 to 45		**200**	68	10 U	**18**
56 to 60		2 U	4	2 U	2 U

LC34-DPT0114

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/23/2008	**200 U**	**13,200**	**200 U**	**200 U**
25 to 29		**400 U**	**8,800**	**400 U**	**16,900**
30 to 34		**2,000 U**	**75,900**	**2,000 U**	**7,800**
41 to 45		**250 U**	**14,000**	**250 U**	**250 U**
56 to 60		**40 U**	**3,700**	40 U	**190**

LC34-DPT0067

Interval	Date	TCE	cDCE	tDCE	VC
30 to 34	06/26/2008	**25,000**	**8,200**	**1,050 U,I**	**1,200 I**
41 to 45		**15,000**	**4,100 I**	**2,100 U,I**	**1,600 U,I**
56 to 60	06/27/2008	**2,500**	**200 U**	**200 U**	**200 U**

LC34-DPT0247

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	3/19/2009	**200 U**	**5,400**	**200 U**	**300**
25 to 29		**290 U**	**63,600**	**630 U**	**35,100**
30 to 34		**290 U**	**57,300**	**290 U**	**11,100**
41 to 45		5 U	5 U	5 U	**5 U**
56 to 60		5 U	52	5 U	**15**

LC34-DPT0119

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/24/2008	**400 U**	**14,300**	**400 U**	**400 U**
16 to 20	12/4/2008	**290 U**	**25,700**	**870**	**1,300**
25 to 29	07/24/2008	**10 U**	**110**	90	**1,100 J**
30 to 34		3 U	63	41	**140**
41 to 45		3 U	18	3 U	**3 U**
56 to 60		1 U	11	1 U	1 U

LC34-DPT0113

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/23/2008	**200 U**	**9,300**	**200 U**	**200 U**
16 to 20	12/4/2008	**290 U**	**36,800**	**1,200**	**1,700**
25 to 29	07/23/2008	**200 U**	**6,100**	**280**	**10,200**
30 to 34		**10 U**	**360**	10 U	**66**
41 to 45		5 U	68	5 U	**5 U**
56 to 60		2 U	5	2 U	2 U

LC34-IW0076 (70-80)

Date	TCE	cDCE	tDCE	VC
8/3/2009	1.0 U	1.0 U	1.0 U	1.0 U

LC34-IW0071D (38-43)

Date	TCE	cDCE	tDCE	VC
12/1/2009	0.32 U	0.2 U	0.45 U	0.3 U

LC34-IW0071D1 (65-75)

Date	TCE	cDCE	tDCE	VC
12/1/2009	0.32 U	0.2 U	0.45 U	0.3 U

LC34-DPT0246

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	3/19/2009	**200 U**	**2,100**	**200 U**	**200 U**
25 to 29		**200 U**	**8,200**	**220**	**1,800**
25 to 29 DUP		**200 U**	**9,500**	**240**	**2,300**
30 to 34		5 U	**160**	8	**30**
41 to 45		1 U	4	1 U	1 U
56 to 60		5 U	**160**	5 U	**7**

LC34-DPT0103

Interval	Date	TCE	cDCE	tDCE	VC
12 to 16	07/18/2008	40 U	**3,300**	97	**410**
20 to 24		**200**	**26,900**	**720**	**710**
25 to 29		**3,300**	**44,200**	**1,000 U**	**2,000**
30 to 34		**42,000**	**25,900**	**2,000 U**	**2,400**
41 to 45		**141,000**	**87,300**	**10,000 U**	**10,000 U**
56 to 60		**39,100**	**10,000 U**	**10,000 U**	**10,000 U**
61 to 65		**43**	53	2 U	2 U

Legend

- DPT Sampling Location
- DPT/MIP Sampling Location
- MIP Location
- Monitoring Well Location (showing screen interval)
- 300 µg/L TCE Isopleth
- 3,000 µg/L TCE Isopleth
- 30,000 µg/L TCE Isopleth

Groundwater Screening Criteria			
Parameter	Abbreviation	GCTL	NADC
Trichloroethene	TCE	3	300
cis-1,2-Dichloroethene	cDCE	70	700
trans-1,2-Dichloroethene	tDCE	100	1,000
Vinyl Chloride	VC	1	100

Notes:
1. Interval is presented in feet below land surface (ft BLS).
2. Results are presented in micrograms per liter (µg/L).
3. I indicates result is between the practical quantitation limit and method detection limit.
4. U indicates not detected.
5. Yellow shaded, bold text indicates exceedance of FDEP Groundwater Cleanup Target Level (GCTL).
6. Orange shaded, bold text indicates exceedance of FDEP Natural Attenuation Default Criteria (NADC).
7. Monitoring well data presented represents most recent data available (dates as indicated, but mainly conducted in November and December 2009) from Long Term Monitoring (data provided by Tetra Tech).
8. TCE isopleths are based on data from the depth interval between 30 and 60 ft BLS.

40 20 0 40 Feet

Contaminant Distribution and TCE Isopleths for the 30 to 60 ft BLS Interval
Hot Spot 1

LC34, Cape Canaveral, FL
ESTCP Project ER-0716

Geosyntec consultants

Guelph | August 2010

Figure 12

I:\tbaylis\e2\1\DATA\GIS\5_TR\2010\2_ESTCP_LC34\MXD\LC34_Hot Spot_area 1_TCE_30_to_60ft.mxd 12 August 2010 MAH

This soil sampling was performed to evaluate the vertical concentration variations in the area, not to define the highest concentration of TCE at the site. Soil samples were intended to illustrate the depth interval where most of the TCE mass was located. The well was installed to confirm that the total depth of contamination was understood (and groundwater from the 70 to 80 ft BLS screen interval confirmed that VOCs were not present at that depth).

The CMS for the site (NASA, 2007) present theoretical soil concentrations for TCE-DNAPL saturation; a value of about 300 mg/kg is considered representative of NAPL-phase TCE. This value was determined using literature values for TCE solubility and organic carbon partition coefficient (K_{oc}), assumed values of bulk density and porosity, and measured values of the fraction of organic carbon (f_{oc}) for the site. The maximum TCE-DNAPL saturation value measured was 56.2 mg/kg^{dry}, which is equivalent to 42.7 mg/kg in the bulk soil. This would represent about 14% of the theoretical threshold value. On this basis the CMS concluded that DNAPL is likely present in the Hot Spot 1 area.

The groundwater concentrations are also indicative of a TCE-NAPL source: the source has been there for over 40 years and concentrations of TCE are still about 30,000 µg/L based on groundwater samples from the monitoring wells and DPT samples in the middle of the Hot Spot 1 area.

5.3 TREATABILITY OR LABORATORY STUDY RESULTS

A Laboratory Treatability Report (NAVFAC ESC et al., 2010) was prepared for the ESTCP review committee to present the results of the Laboratory Treatability Testing conducted as part of ESTCP project ER-0716. Laboratory treatability studies were conducted to evaluate candidate PEDs for eventual field application as part of the project. Based on prior research, consideration of physical-chemical properties, material costs, and toxicity, two candidate PEDs, nBA and nHEX, were selected for evaluation for enhanced microbial reductive dechlorination of TCE-NAPL.

The experiments conducted included:

(i) PED-NAPL Partitioning Studies to assess key physical-chemical parameters that are important for successful field implementation and included liquid-liquid equilibrium batch studies and mass transfer column experiments (abiotic columns);

(ii) Bench-Scale Treatability experiments to obtain site-specific design parameters for PED delivery, mass transfer, and enhanced microbial reductive dechlorination activity in a TCE-DNAPL source zone. These tests were designed to evaluate mass transfer of the partitioning electron donor and potential microbial activity under anticipated field conditions, and ultimately to demonstrate that the PED enhances reductive dechlorination activity and DNAPL dissolution rates.

Liquid-liquid equilibrium batch tests indicated that the partitioning behavior of both candidate PEDs (nHEX and nBA) could be characterized by ideal linear partitioning theory over the range of aqueous concentrations likely to be used in a field application (i.e. using initial dissolved-phase concentrations approaching aqueous solubility of the PED). Results demonstrated that based on partitioning coefficients nBA would partition more strongly into the NAPL than the nHEX. nBA was then selected for the field application. Abiotic column experiments further characterized the partitioning behavior of both candidate PEDs under flowing conditions in a well-characterized aquifer material (Federal Fine Ottawa sand). Tests were performed at a range of seepage velocities (1.2 to 6.0 meters per day [m/day]) in columns containing entrapped residual TCE-NAPL. Comparison of the column effluent breakthrough curves (BTCs) to predictions based on the one-dimensional advective-dispersive-reactive (ADR) transport equation indicated that PED partitioning occurred, but was not at equilibrium. The BTCs were fit with a 1-D ADR transport equation that incorporated a one-site solute non-equilibrium partitioning model. This model allowed calculation of a NAPL:water partitioning coefficient (K_{nw}), PED retardation factor (R_F) and a first-order mass transfer coefficient (k). The resulting data showed that nBA had a greater partitioning coefficient (and hence greater retardation factor) and slower mass-transfer rate than nHEX. The results confirmed the strong partitioning of nBA into TCE-NAPL. The results from these abiotic studies were published by Cápiro et al. (2011).

The strong partitioning of nBA into TCE- and surrogate-NAPL suggested that a single injection of PED solution was capable of providing electron donor to support microbial reductive dechlorination far beyond the number of PVs delivered, thereby reducing the need for frequent or repeated PED injections, independent of groundwater velocity. On this basis, nBA was selected as the PED for use in the bench scale biological treatability evaluation.

Microbial batch studies confirmed the efficacy of nBA as the electron donor to support the KB-1® Plus consortium to dechlorinate TCE and 1,1,1-trichloroethane (1,1,1-TCA). The results indicated that the KB-1® Plus consortium was able to degrade nBA and utilize it as an electron donor for dechlorination of TCE and 1,1,1-TCA. In these batch tests, the nBA-amended systems removed TCE and 1,1,1-TCA at dissolved concentrations of 5 mg/L over the same time period as the soluble methanol-ethanol-lactate (MEL) electron donor blend. Similarly positive results were obtained in systems containing surrogate NAPL and correspondingly high dissolved phase concentrations of TCE and 1,1,1-TCA (about 200 mg/L each). Results from the batch studies suggested that nBA would be a suitable PED for deployment in the field, based on the physical-chemical partitioning characteristics and the observed utility as an electron donor.

5.4 DESIGN AND LAYOUT OF TECHNOLOGY COMPONENTS

A primary objective of the project was to make the application of a PED similar to existing direct push injection approaches. The purpose of using a PED in place of a traditional electron donor was to maximize the bioremediation efficiency and improve the DNAPL dissolution rate, while minimizing implementation costs associated with the application of EISB in DNAPL source

zones. As such, the quantitative performance objectives established were to assess the PED application impact on primary parameters such as increased DNAPL dissolution (i.e. increased total VOC mass flux) and reduction in DNAPL mass. It was assumed that the application of PEDs would cost much the same as conventional donors on a per-application basis (for example, delivery using standard direct-push injection equipment from vendors), hence, if PEDs were effective longer (i.e., persisting longer results in less frequent donor amendment) and/or shorten remediation time frames, it would lower overall O&M costs. Therefore some components and tasks during the DEM/VAL were meant to assess the objectives and will not necessarily be required in future applications.

The system components included:

- extraction of groundwater from the center of the treatment area from extraction wells screened above and below the clay layer;
- injection of groundwater into injection wells screened above and below the clay layer surrounding treatment area;
- recirculation of site groundwater using a solar powered recirculation system;
- evaluation of mass flux without nBA enhancement by measuring VOC concentrations in samples from extraction wells (granular activated carbon [GAC] used to treat groundwater before reinjection during this phase) before nBA injection;
- injection of nBA using DPT into interval above and below the clay layer; and
- continued recirculation (no GAC treatment) and evaluation of mass flux and enhanced bioremediation using nBA by measuring VOC concentrations in samples from site monitoring wells and site soil samples.

For the field site the DEM/VAL was conducted in two zones, one above and one below the clay horizon. For this study these have been termed sweep zones as these are the areas where treatment is targeted. For each sweep zone, a groundwater recirculation system consisting of a central extraction well and five peripheral injection (recharge) wells was constructed to move groundwater through the PED-amended zone and maintain hydraulic control within the DEM/VAL area (Figure 13). The recirculation systems utilized solar-powered submersible pumps. The system components were housed in a mobile trailer, with the solar panels mounted to the roof. To supplement the existing monitoring wells, three multilevel monitoring well bundles were installed within the demonstration area at varying distances from the central extraction location. A schematic cross section of the DEM/VAL plot is provided in Figure 10, showing the locations of the well screens relative to the site lithology and the MIP data from the IW0076 location. Figure 14 shows the process flow diagram for the groundwater recirculation system.

N

LC34-IW0070S (1-11)
LC34-IW0070D1 (65-75)
LC34-IW0070D (38-43)
LC34-IW0067D (38-43)
LC34-IW0067D1 (63-73)
LC34-IJ0021 (32-42)
LC34-IJ0022 (47-57)
LC34-IJ0013 (32-42)
LC34-IJ0014 (47-57)
LC34-IW0002D (35-40)
LC34-IW0002D1 (50-55)
LC34-IW0002I (25-30)
LC34-IW0002S (2-12)
LC34-BW0002
A (23-26)
B (30-33)
C (37-40)
D (44-47)
E (51-54)
F (58-61)
LC34-IJ0019 (32-42)
LC34-IJ0020 (47-57)
LC34-IW0076 (70-80)
LC34-RW0008 (47-57)
LC34-RW0007 (35-42)
LC34-IJ0015 (32-42)
LC34-IJ0016 (47-57)
LC34-BW0001
A (23-26)
B (30-33)
C (37-40)
D (44-47)
E (51-54)
F (58-61)
LC34-BW0003
A (23-26)
B (30-33)
C (37-40)
D (44-47)
E (51-54)
F (58-61)
LC34-IJ0017 (32-42)
LC34-IJ0018 (47-57)
LC34-IW0071D (38-43)
LC34-IW0071D1 (65-75)

Legend

- Bundle Well Location
- Monitoring Well Location
- Monitoring Well Location - Not Part of Sampling Plan
- Extraction Well Location
- Injection Well Pair Location

LC34-IW002I (25-30)
Well Identifier — Screen Interval (ft BLS)

Note:
ft BLS indicates feet below land surface.

30 15 0 30 Feet

Plan View of PED Demonstration Layout

Hot Spot 1, LC34, Cape Canaveral, FL / ESTCP Project ER-0716

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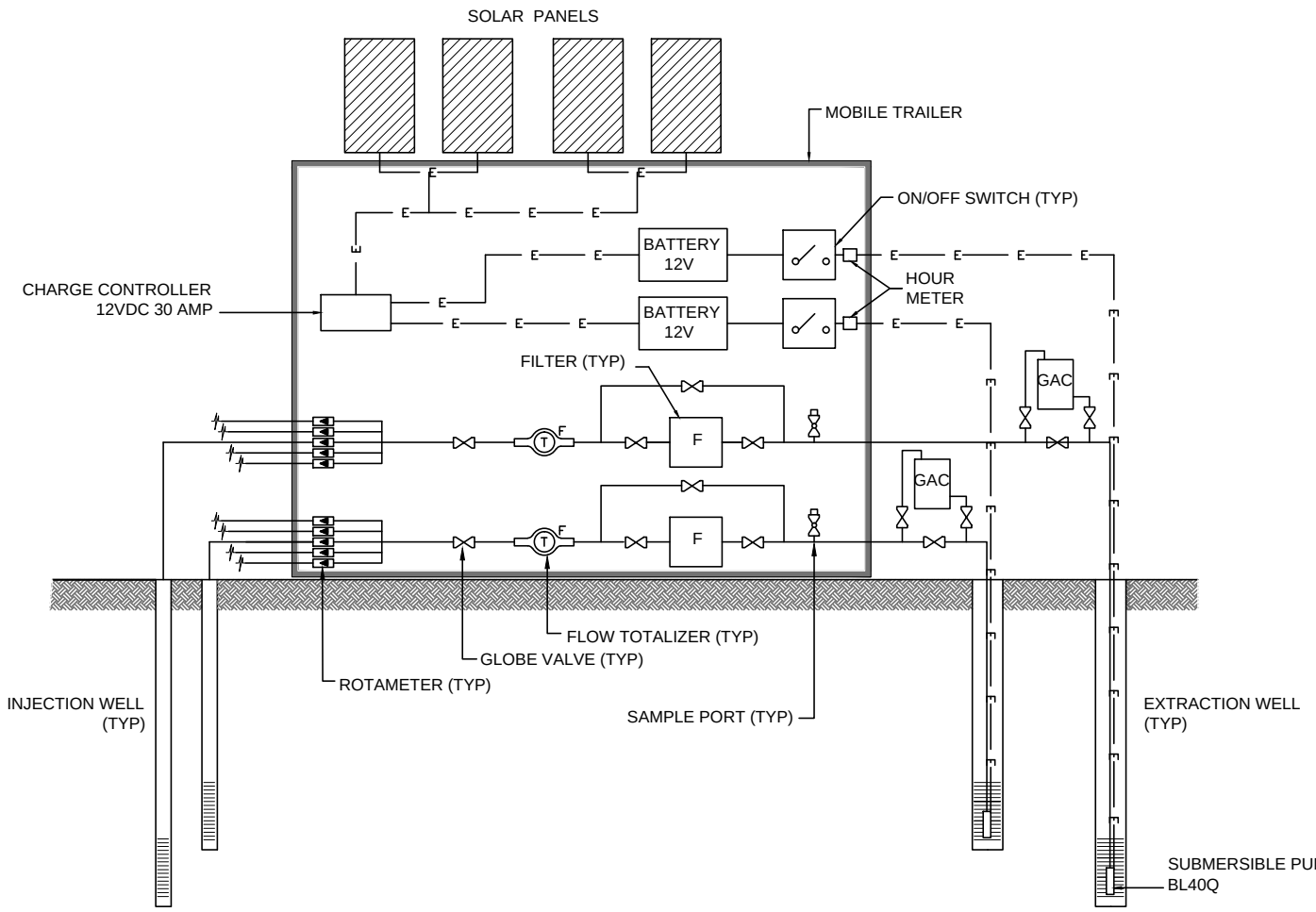
Figure 13

Path: (Titusville 01\DATA\ T:\GIS\FO0502\MXDs\ESTCP_MAR2013\Plan_view_PED_layout.mxd 05 April 2013 MAH



NOT TO SCALE

LEGEND

GROUNDWATER RECIRCULATION LINES

ELECTRICAL LINES

NOTE:
1. GRANULAR ACTIVATED CARBON (GAC) WAS ONLY USED DURING THE BASELINE FLUX ASSESSMENT PHASE (REFER TO TEXT).

Process and Instumentation Diagram

Hot Spot 1, LC34 Cape Canaveral, FL
ESTCP Project ER-0716

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Figure 14

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Appendix B contains a summary of the well installation details. All borehole drilling and well installation was performed by a State-licensed driller, Environmental Drilling Services, Inc. (EDS), under the direction of a Geosyntec field geologist.

The groundwater recirculation system was installed in February 2011. It consisted of a mobile utility trailer that housed the system components and piping that carried the flow of groundwater from the extraction wells to the trailer and then to the injection wells. Parallel independent groundwater recirculation systems were operated for each of the upper and lower sweep zones. It should be noted that the recirculation system is not a requirement for application of the PED, but that for DEM/VAL it provided a controlled manner to assess performance. For each sweep zone, groundwater is pumped from the central extraction well and delivered to the five perimeter injection wells. A process and instrumentation diagram (P&ID) is presented on Figure 14. Appendix C contains a summary of the system operation details and supporting information.

The recirculation piping system was constructed using 0.75-inch diameter polyethylene (PE) tubing. The lines were run above-ground, enclosed in 2-inch diameter schedule 40 PVC for secondary containment. The upper and lower sweep zones had independent recirculation systems, with no mixing of fluid from one zone to the other. Submersible pressure transducers and data loggers were deployed in the extraction wells, six injection wells and two monitoring wells to measure and record water level fluctuations during system operation.

During the initial groundwater recirculation phase to establish baseline concentrations and mass flux, extracted groundwater was treated with GAC prior to re-injection. The GAC vessels were plumbed into the system so that extracted groundwater was treated before it entered the trailer and the flow was divided (see Figure 14).

The PED and conservative tracers (bromide and iodide) were amended throughout the DEM/VAL plot via a set of 20 DPT injection locations. This approach was selected to achieve better initial distribution of the PED throughout the target area, rather than amending recirculated groundwater. A licensed contractor with experience in DPT injection of bioremediation amendments was subcontracted to perform the injections. Equipment, specified and supplied by the contractor, included the following: DPT rod; injection tools (one capable of focused delivery to a 2-ft interval, one a 5-ft interval); pumps capable of supplying the required flow rates and injection pressures; manifolds with valves, pressure gauges and flow meters to measure and control the achieved flow rate and pressure at each location; and batch mix tanks, with requisite mixers and valves to ensure proper blending of the amendment fluids prior to injection. The instantaneous flow rate, injection pressure and the totalized flow rate were monitored and recorded during each injection event. The PED injection is discussed below (Section 5.5) and in Appendix C.

The target depth interval spanned an approximately 40 ft thick zone from about 23 to 63 ft BLS, encompassing the clay horizon within which TCE concentrations were elevated. The amendment zone included about 19 ft above the clay horizon, 6 ft within the clay, and about 15 ft

beneath the clay horizon. At each location, the injections were conducted in a series of steps, starting at the top of the target interval and working downwards. Injections mostly used a 2-ft injection tool to allow control of the delivery of amendment to targeted intervals; at a few locations a 5-ft injection tool was used.

The design involved injection of 34,000 gal of nBA solution (3,000 mg/L). This volume was selected to be approximately 50% of the total pore volume of the target zone. The amendment zone targeted the center of the Hot Spot 1 area, where TCE concentrations were greatest, roughly corresponding with the area enclosed by the 30,000 µg/L TCE isopleth and extending beyond that by approximately 5 ft in all directions (refer to Figure 12).

Two (2) conservative tracers were added to PED injection fluids. Bromide was used as a conservative tracer in all injection fluids, to provide an indicator of amended fluid; the concentration of bromide would indicate the proportion of injectate in any sample. Iodide was added as a tracer only in the injection fluids introduced above the confining silty clay horizon. The iodide was used to monitor for potential migration of fluid from the upper treatment zone through the clay to the lower zone, which could have occurred as a result of maintaining a lower hydraulic head in the lower zone.

Following PED injection, the recirculation system remained off for a period of six weeks to allow the PED to partition into NAPL within the demonstration area and to facilitate the acclimation and establishment of biomass within the demonstration area. Groundwater extraction during this 'shut-in' phase was undesirable, since it might have removed much of the amended nBA and re-injected it on the periphery. At the end of this Biomass Growth Phase, the distribution of PED and VOCs within the demonstration area was assessed through DPT soil sampling and a synoptic survey of groundwater concentrations.

After biomass growth phase was complete the groundwater recirculation system was activated. Recirculation of groundwater occurred for approximately thirteen months. During this time routine sample events took place to evaluate the effectiveness of the PED injection.

5.5 FIELD TESTING

The field DEM/VAL was implemented in accordance with the Demonstration Plan. Implementation of the experimental design consisted of seven main tasks as follows:

a. Installation and Shake Down (Task 1);
b. Baseline Soil and Groundwater Sampling (Task 2);
c. Baseline Flux Assessment (Task 3);
d. Introduction of PED and Tracers (Task 4);
e. Biomass Growth (Task 5);
f. Recirculation System Operation (Task 6); and
g. Demobilization (Task 7).

Table 2 presents a summary of the type and number of samples collected from each phase of the DEM/VAL. Figure 15 provides a Gantt chart of the technology demonstration schedule. Appendix C contains a summary of the operation of the groundwater extraction period. Table 3 presents a detailed summary of the O&M and sampling events. The following sections provide a brief summary of each operational phase of the DEM/VAL.

5.5.1 Task 1 – Well Installation and System Shake Down

A total of 30 wells (two central extraction wells, ten paired recharge wells and three multilevel bundle monitoring wells with six depth intervals each) were installed between 17 and 25 January 2011, as described in Appendix B, to complement the existing monitoring wells (four within the demonstration area and six located peripherally). The new wells were developed to remove fine sediments and ensure adequate hydraulic connection with the formation. Initial baseline groundwater samples were collected between 1 and 3 February 2011. Characterization of the well hydraulics was performed at select locations on 15 February 2011 using a pneumatic slug test technique. The system conveyance piping and infrastructure, including the trailer, solar system and extraction pumps, was then installed, connected and tested for leaks. The infrastructure for the PED DEM/VAL included a solar powered groundwater recirculation system mounted within a mobile trailer.

5.5.2 Task 2 – Baseline Soil and Groundwater Sampling

Baseline soil VOC concentrations were measured on soil samples collected on 19 January 2011 during installation of the extraction and multilevel bundle monitoring wells. Initial baseline groundwater samples were collected on 1 to 3 February 2011 from each of the newly installed wells and existing monitoring wells within the test area, and analyzed for VOCs to confirm the distribution of VOCs within the demonstration area. Details for this sampling event are provided in Appendix B and the results are provided in Appendix E and Section 5.7 below.

5.5.3 Task 3 – Baseline Flux Assessment

The groundwater extraction and recharge system was operated, without addition of PED, for a period of about 4 weeks to establish the baseline condition. Groundwater recirculation was initiated on 14 March 2011 and operated until 18 April 2011. During this time, samples were collected weekly from each central extraction well and up to six monitoring wells and analyzed for a variety of parameters as detailed above (refer to Table 3 and the sampling tables in Appendix D).

TABLE 2. TOTAL NUMBER AND TYPES OF SAMPLES COLLECTED

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

STAGE	MATRIX	NUMBER OF SAMPLES	ANALYTE	SAMPLING FREQUENCY / LOCATION [1]
Stage 2 - Baseline and Stage 3 - Baseline Flux Assessment	Soil: Laboratory Measurement	19	VOCs (includes nBA)	4 locations within test plot, 4 to 6 depths per location
		8	Fraction of Organic Carbon	2 locations within test plot, 4 depths per location
		4	Grain Size Distribution	4 samples from location SB1002
	Groundwater: Field Measurement	na	Field Parameters (DO, ORP, pH, conductivity, temperature)	Data was recorded during all sample collection events
	Water: Laboratory Measurement	6	VOCs (includes nBA and n-butanol)	Effluent samples from GAC treatment
	Groundwater: Laboratory Measurement	94	VOCs (includes nBA and n-butanol)	Initial baseline from all wells including 6 perimeter wells and 4 injection wells; weekly from 2 RWs and 8 MWs for 3 weeks of recirculation; snapshot of all
		30	Volatile Fatty Acids	Weekly from 2 RWs for 3 weeks during recirculation; snapshot of all locations except perimeter wells at end of one month of recirculation
		30	Tracers (bromide & iodide)	Weekly from 2 RWs for 3 weeks during recirculation; snapshot of all locations except perimeter wells at end of one month of recirculation
		36	Total Organic Carbon	Weekly from 2 RWs for 3 weeks during recirculation; snapshot of all locations, including perimeter wells, at end of one month of recirculation
		26	Dissolved Hydrocarbon Gases	Biweekly samples from 2 RWs during recirculation (i.e. after about 2 weeks), and snapshot of all locations except perimeter wells at end of one month of recirculation
		15	Hydrogen Sulfide	Biweekly samples from 2 RWs during recirculation (i.e. after about 2 weeks), and snapshot of 2 RWs and 11 MWs at end of one month of recirculation
		15	Anions	Biweekly samples from 2 RWs during recirculation (i.e. after about 2 weeks), and snapshot of 2 RWs and 11 MWs at end of one month of recirculation
		15	Alkalinity	Biweekly samples from 2 RWs during recirculation (i.e. after about 2 weeks), and snapshot of 2 RWs and 11 MWs at end of one month of recirculation
		12	Dissolved Metals	Sampling at the end of one month of recirculation from 2 RWs and 11 MWs
		6	Microbial Characterization (*Dhc* 16S rRNA gene/*vcr* A)	Sampling at the end of one month of recirculation from 2 RWs and 4 MWs
Stage 4 PED Injection	Groundwater: Field Measurement	na	Field Parameters (DO, ORP, pH, conductivity, temperature)	Data was recorded during all sample collection events
	Water	17	VOCs (includes nBA and n-butanol)	Samples from selected batches of PED injection fluid
		17	Tracers (bromide & iodide)	Samples from selected batches of PED injection fluid
	Groundwater: Laboratory Measurement	29	VOCs (includes nBA and n-butanol)	Following PED injection, DP sample collection at 4 step-out locations, with 4 to 5 depths each; sampling at 11 select MWs
		25	Tracers (bromide & iodide)	Following PED injection, DP sample collection at 4 step-out locations, with 4 to 5 depths each; sampling at 11 select MWs
Stage 5 Biomass Growth	Soil: Laboratory Measurement	17	VOCs (includes nBA and n-butanol)	3 locations from test plot, 5 to 6 depths per location
	Groundwater: Field Measurement	na	Field Parameters (DO, ORP, pH, conductivity, temperature)	Data was recorded during all sample collection events
	Groundwater: Laboratory Measurement	24	VOCs (includes nBA and n-butanol)	Snapshot following shut-in period, all locations except perimeter wells
		24	Volatile Fatty Acids	Snapshot following shut-in period, all locations except perimeter wells
		24	Tracers (bromide & iodide)	Snapshot following shut-in period, all locations except perimeter wells
		24	Total Organic Carbon	Snapshot following shut-in period, all locations except perimeter wells
		24	Dissolved Hydrocarbon Gases	Snapshot following shut-in period, all locations except perimeter wells
		13	Hydrogen Sulfide	Snapshot following shut-in period, subset of locations (2 RWs, 11 MWs)
		13	Anions	Snapshot following shut-in period, subset of locations (2 RWs, 11 MWs)
		13	Alkalinity	Snapshot following shut-in period, subset of locations (2 RWs, 11 MWs)
		12	Dissolved Metals	Snapshot following shut-in period, subset of locations (2 RWs, 10 MWs)

TABLE 2. TOTAL NUMBER AND TYPES OF SAMPLES COLLECTED

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

STAGE	MATRIX	NUMBER OF SAMPLES	ANALYTE	SAMPLING FREQUENCY / LOCATION [1]
Stage 6 Recirculation System Operation	Soil: Laboratory Measurement	22	VOCs (includes nBA and n-butanol)	3 locations within test plot, 7 to 8 depths per location
	Groundwater: Field Measurement	na	Field Parameters (DO, ORP, pH, conductivity, temperature)	Data was recorded during all sample collection events
	Groundwater: Laboratory Measurement	84	VOCs (includes nBA and n-butanol)	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 of all locations; snapshot at month 6 of all locations
		72	Volatile Fatty Acids	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 and month 6 of all locations except perimeter wells
		72	Tracers (bromide & iodide)	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 and month 6 of all locations except perimeter wells
		78	Total Organic Carbon	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 of all locations except perimeter wells; snapshot at month 6 of all locations
		72	Dissolved Hydrocarbon Gases	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 and month 6 of all locations except perimeter wells
		50	Hydrogen Sulfide	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 and month 6 from subset of locations (2 RWs, 11 MWs)
		50	Anions	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 and month 6 from subset of locations (2 RWs, 11 MWs)
		50	Alkalinity	2 RWs weekly for one month, biweekly for five months; snapshot at month 3 and month 6 from subset of locations (2 RWs, 11 MWs)
		48	Dissolved Metals	2 RWs weekly for one month, biweekly for five months; snapshot at month 6 from subset of locations (2 RWs, 10 MWs)
		12	Microbial Characterization (*Dhc* 16S rRNA gene/*vcr* A)	Snapshot at month 3 and month 6, from 2 RWs and 4 MWs
Stage 7 Interim Measure Recirculation System Operation	Soil: Laboratory Measurement	22	VOCs (includes nBA and n-butanol)	3 locations within test plot, 7 to 8 depths per location
	Groundwater: Field Measurement	na	Field Parameters (DO, ORP, pH, conductivity, temperature)	Data was recorded during all sample collection events
	Groundwater: Laboratory Measurement	64	VOCs (includes nBA and n-butanol)	2 RWs monthly for five months; snapshot at month 10 of all locations; snapshot at month 13 of all locations except perimeter wells
		48	Total Organic Carbon	Snapshot at month 10 and month 13 at all locations except perimeter wells
		48	Dissolved Hydrocarbon Gases	Snapshot at month 10 and month 13 at all locations except perimeter wells
		12	Microbial Characterization (*Dhc* 16S rRNA gene/*vcr* A)	Snapshot at month 10 and month 13, from 2 RWs and 4 MWs

Notes:

(1) There are 23 sampling locations (wells) within the treatment zone, including 2 RWs, 3 exisiting MWs, 3 nested multilevel MWs with 6 screen depth intevals each. There is 1 existing MW screened below the treatment zone. There are 3 far-field locations on the perimeter, each with a pair of wells screened above and below the clay horizon. Of the 10 injection wells, 4 were sampled at baseline. In addition, several DP locations were used for soil and groundwater sampling.

Dhc - *Dehalococcoides*
DO - Dissolved oxygen
DP - direct push
MW - monitoring well
na - not applicable
nBA - n-butyl acetate
ORP - oxidation reduction potential
RW - extraction well
vcr A - vinyl chloride reductase enzyme
VOC - volatile organic compound

TABLE 3. PED DEM/VAL EVENT SCHEDULE SUMMARY

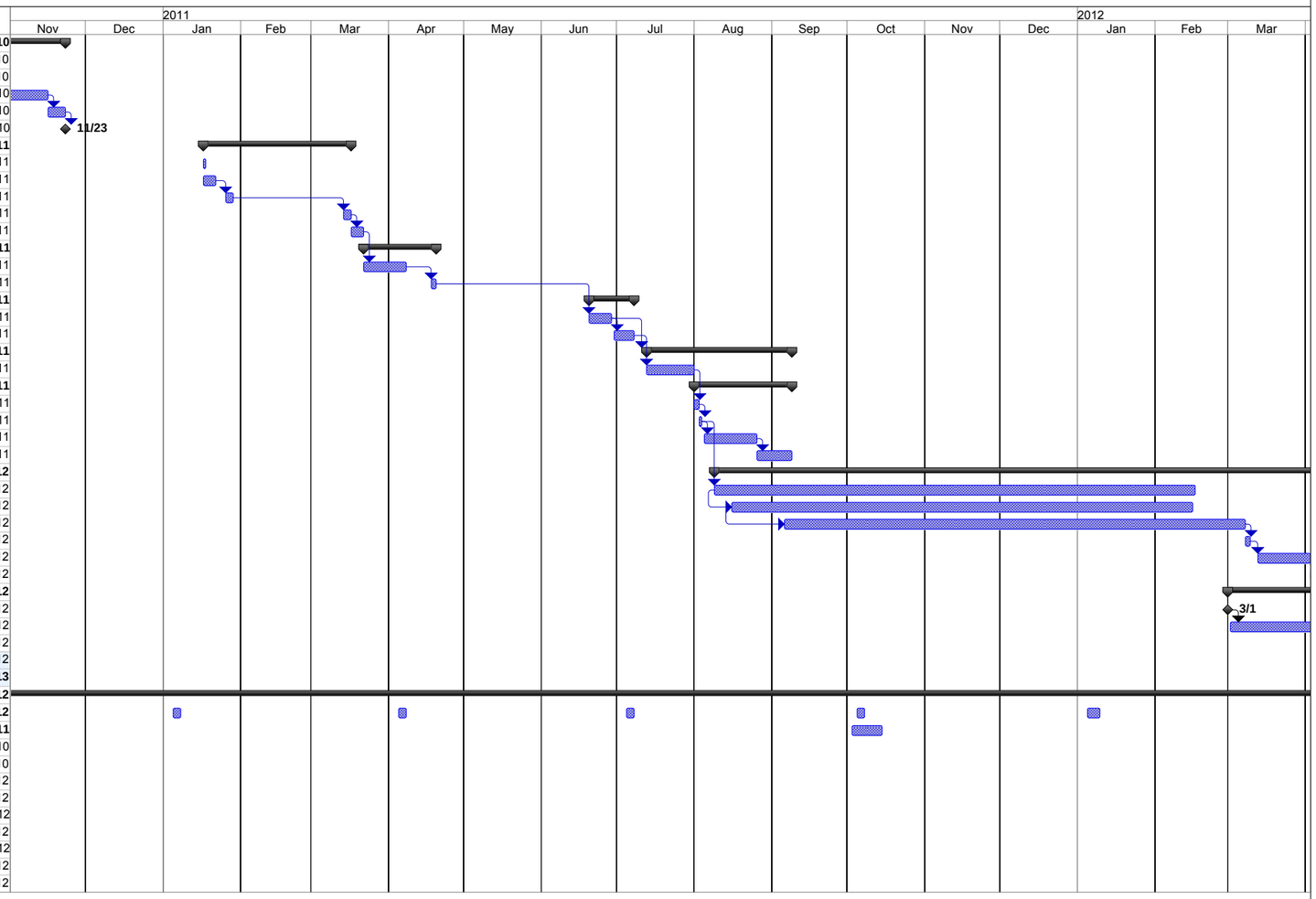
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Task Name	Date	Activity
Well Installation	17 to 21 and 24 & 25 January 2011	Well Installations & Baseline Soil Sampling
Baseline Sampling	1 to 3 February 2011	Baseline groundwater sampling
Baseline Sampling	15-Feb-11	Baseline hydraulic conductivity assessments
System Install & Shake Down	March 2011	Groundwater recirculation system constructed, including mobile trailer
	14-Mar-11	Groundwater recirculation system start up
Baseline Flux Assessment	22-Mar-11	BFA Week 1 Groundwater Sampling
	28-Mar-11	BFA Week 2 Groundwater Sampling
	7-Apr-11	BFA Week 3 Groundwater Sampling
	18 and 19 April	BFA Week 4 Groundwater Sampling Synoptic Survey
	18-Apr-11	Recirculation system shut down
Introduction of PED & Tracers	20 to 24 and 27 & 28 June 2011	PED Injection Activities
	30-Jun-11	DPT groundwater sampling (DPT328 – DPT331) to aid in evaluation of radius of influence from injection activities
	7-Jul-11	Groundwater sampling from select site monitoring wells; to evaluate nBA distribution
Biomass Growth Phase	July to August 2011	Biomass growth phase – recirculation system off
	1 to 3 August 2011	Post-biomass growth phase soil and groundwater sampling
Recirculation System Operation	9-Aug-11	Restart groundwater recirculation system
	12-Aug-11	Week 1 O&M and groundwater sampling (RW wells only)
	18-Aug-11	Week 2 O&M and groundwater sampling (RW wells only)
	24-Aug-11	Week 3 O&M and groundwater sampling (RW wells only)
	31-Aug-11	Week 4 O&M and groundwater sampling (RW wells only)
	8-Sep-11	Week 5 O&M
	15-Sep-11	Week 6 O&M and groundwater sampling (RW wells only)
	22-Sep-11	Week 7 O&M
	28-Sep-11	Week 8 O&M and groundwater sampling (RW wells only)
	5-Oct-11	Week 9 O&M
	13-Oct-11	Week 10 O&M and groundwater sampling (RW wells only)
	20-Oct-11	Week 11 O&M
	25- to 27-Oct-11	Week 12 (Month 3) O&M and groundwater sampling (synoptic survey)
	3-Nov-11	Week 13 O&M
	10-Nov-11	Week 14 O&M and groundwater sampling (RW wells only)
	17-Nov-11	Week 15 O&M
	22-Nov-11	Week 16 O&M and groundwater sampling (RW wells only)
	1-Dec-11	Week 17 O&M
	7-Dec-11	Week 18 O&M
	15-Dec-11	Week 19 O&M and groundwater sampling (RW wells only)
	22-Dec-11	Week 20 O& M
	5-Jan-12	Week 22 O&M and groundwater sampling (RW wells only)
	16-Jan-12	Week 24 O&M
	26-Jan-12	Week 25 O&M and groundwater sampling (RW wells only)
	6-Feb-12	Week 27 O&M
	13-Feb-12	Week 28 (Month 7) Final Soil Samples
	14- to 16-Feb-12	Week 28 (Month 7) O&M and Final Dem/Val Groundwater Sampling (synoptic survey)
Post PED Monitoring (IMWP)	2-Mar-12	Week 30 O&M
	15-Mar-12	Week 32 O&M and groundwater sampling (RW wells only)
	5-Apr-12	Week 35 O&M
	19-Apr-12	Week 37 O&M and groundwater sampling (RW wells only)
	4-May-12	Week 39 O&M
	17-May-12	Week 41 O&M and groundwater sampling (RW wells only)
	7-Jun-12	Week 44 O&M
	21-Jun-12	Week 46 O&M
	26- to 27-Jun-12	Week 47 (Month 10) groundwater sampling (synoptic survey)
	10-Jul-12	Week 49 O&M
	19-Jul-12	Week 50 O&M and groundwater sampling (RW wells only)
	2-Aug-12	Week 52 O&M
	16-Aug-12	Week 54 O&M and groundwater sampling (RW wells only)
	6-Sep-12	Week 57 O&M
	10-Sep-12	Week 58 soil sampling
	13-Sep-12	Week 58 (Month 13) groundwater sampling (synoptic survey)
		** no final readings, not sure when system off

Geosyntec Consultants

FIGURE 15
FIELD SCHEDULE
Hot Spot 1, LC34, Cape Canaveral, FL
ESTCP Project ER-0716

ID	Task Name	Duration	Start	Finish
1	**Tech Demo Workplan**	**86 days**	**Mon 7/26/10**	**Mon 11/22/10**
2	Draft Tech Demo Workplan	25 days	Mon 7/26/10	Fri 8/27/10
3	Submission to ESTCP	1 day	Mon 9/13/10	Mon 9/13/10
4	ESTCP Review	45 days	Tue 9/14/10	Mon 11/15/10
5	Address Comments	5 days	Tue 11/16/10	Mon 11/22/10
6	Report to ESTCP	1 day	Tue 11/23/10	Tue 11/23/10
7	**Well Installation & System Shake-down**	**43 days**	**Mon 1/17/11**	**Wed 3/16/11**
8	Utility Clearances	1 day	Mon 1/17/11	Mon 1/17/11
9	Drill & Install Wells	5 days	Mon 1/17/11	Fri 1/21/11
10	Development of Wells	3 days	Wed 1/26/11	Fri 1/28/11
11	System Setup	3 days	Mon 3/14/11	Wed 3/16/11
12	**Baseline Sampling**	3 days	Thu 3/17/11	Mon 3/21/11
13	**Baseline Flux Assessment**	**21 days**	**Tue 3/22/11**	**Tue 4/19/11**
14	Groundwater Recirculation - Assess Flux	13 days	Tue 3/22/11	Thu 4/7/11
15	Synoptic GW Sampling Round	2 days	Mon 4/18/11	Tue 4/19/11
16	**Introduction of PED and Tracers**	**14 days**	**Mon 6/20/11**	**Thu 7/7/11**
17	Donor Amendment - DP Injections	7 days	Mon 6/20/11	Tue 6/28/11
18	Injection Assessment - DP Sampling	6 days	Thu 6/30/11	Thu 7/7/11
19	**Biomass Growth Phase**	**43 days**	**Wed 7/13/11**	**Thu 9/8/11**
20	Allow biomass to establish	14 days	Wed 7/13/11	Sun 7/31/11
21	**Assess Distribution**	**29 days**	**Mon 8/1/11**	**Thu 9/8/11**
22	Synoptic GW Sampling Round	2 days	Mon 8/1/11	Tue 8/2/11
23	Soil Sampling - DP	1 day	Wed 8/3/11	Wed 8/3/11
24	Labwork	15 days	Fri 8/5/11	Thu 8/25/11
25	Data Analysis	10 days	Fri 8/26/11	Thu 9/8/11
26	**Recirculation System Operation**	**289 days**	**Tue 8/9/11**	**Fri 9/14/12**
27	Groundwater Extraction	138 days	Tue 8/9/11	Thu 2/16/12
28	Routine GW Sampling	132 days	Tue 8/16/11	Wed 2/15/12
29	Data Trend Assessment	132 days	Tue 9/6/11	Wed 3/7/12
30	Soil Sampling - DP	2 days	Thu 3/8/12	Fri 3/9/12
31	Labwork	15 days	Tue 3/13/12	Mon 4/2/12
32	Data Analysis	15 days	Tue 4/3/12	Mon 4/23/12
33	**Optional Extension of Operation**	**142 days**	**Thu 3/1/12**	**Fri 9/14/12**
34	Decision Point - Extend Operation?	1 day	Thu 3/1/12	Thu 3/1/12
35	Groundwater Extraction (period to be determined)	139 days	Fri 3/2/12	Wed 9/12/12
36	Contingency GW Sampling (synoptic round)	2 days	Thu 9/13/12	Fri 9/14/12
37	Decision Point - Continue Operation?	1 day	Fri 9/14/12	Fri 9/14/12
38	**Second Round Operation (Optional)**	**171 days**	**Mon 10/29/12**	**Mon 6/24/13**
45	**Reporting**	**721 days**	**Tue 1/26/10**	**Mon 10/29/12**
46	**Quarterly Status Reports**	**396 days**	**Tue 10/5/10**	**Mon 4/9/12**
54	**Annual In-Progress Review**	**272 days**	**Fri 10/1/10**	**Fri 10/14/11**
57	Draft Treatability Study Report	1 day	Tue 1/26/10	Tue 1/26/10
58	Final Treatability Study Report	1 day	Fri 2/26/10	Fri 2/26/10
59	Data Analysis & Report Preparation	45 days	Tue 5/8/12	Mon 7/9/12
60	Draft Final Report	1 day	Thu 8/9/12	Thu 8/9/12
61	Final Final Report	1 day	Tue 9/11/12	Tue 9/11/12
62	Draft C&P Report	1 day	Thu 8/9/12	Thu 8/9/12
63	Final C&P Report	1 day	Tue 9/11/12	Tue 9/11/12
64	Draft Addendum to Tri-Service Principles and Practices (D)	1 day	Wed 9/26/12	Wed 9/26/12
65	Final Addendum to the Tri-Service Principles and Practices (D)	1 day	Mon 10/29/12	Mon 10/29/12



Project: PED ER-0716
Date: Fri 3/8/13

Task
Split
Milestone
Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Progress
Deadline

At the end of this period of recirculation, on 18 and 19 April 2011, a comprehensive synoptic groundwater sampling event was conducted in which all monitoring locations were sampled to determine the baseline distribution of TCE and other parameters (refer to Table 3 and the sampling tables in Appendix D). The results from this synoptic is sampling for the baseline flux measurement phase served as the baseline event for post injection data analysis.

During this initial groundwater recirculation phase, extracted groundwater was treated with GAC to remove VOCs prior to re-injection.

5.5.4 Task 4 – Introduction of PED and Tracers

PED injection was performed from 20 to 28 June 2011 using an injection platform and DPT injection tools. Appendix C contains supplemental information on the PED and tracer injections. Fluid containing PED and tracers was amended throughout the demonstration area via a set of 20 DPT injection locations. A total of 34,000 gal (1,700 gal per injection point) of fluid containing 3,000 mg/L of nBA was injected, in a series of 2-ft intervals, into the target depth interval from 23 to 62 ft BLS.

Potassium bromide (KBr) was added to all injectate batches at a target bromide concentration of approximately 60 mg/L in the injection fluid. Relative bromide concentrations can be used to normalize PED concentrations to account for dilution. PED injection fluids for the upper zone were also amended with potassium iodide (KI) at a target iodide concentration of 140 mg/L in the injection fluid. This concentration was selected to be somewhat higher than for bromide, since it was expected that only relatively small amounts of fluid, if any, would be transported through the clay layer from the upper sweep zone to the lower sweep zone.

5.5.5 Task 5 – Biomass Growth Phase

Following PED injection, the recirculation system remained off for a period of six weeks to allow the PED to partition into NAPL within the demonstration area and to facilitate the acclimation and establishment of biomass within the demonstration area. Groundwater extraction during this ‘shut-in’ phase was undesirable, since it might have removed much of the amended nBA and re-injected it on the periphery. At the end of the Biomass Growth Phase, the distribution of PED and VOCs within the demonstration area was assessed through DPT soil sampling and a synoptic survey of groundwater concentrations. This would help to assess the partitioning effect of PED into residual DNAPL and establish a baseline before recirculation was restarted.

5.5.6 Task 6 – Recirculation System Operation

The groundwater recirculation system was activated on 09 August 2011 and operated for approximately thirteen months, until 13 September 2012. The first six months, through 16 February 2012, are considered the Main Recirculation Phase, which corresponds to the

duration of the DEM/VAL proposed in the TDP. System operation was continued for an additional seven months, through 13 September 2012, under an Interim Measure Work Plan (IMWP) for NASA. This continuation period is referred to as the Interim Measure Recirculation Phase (refer to Appendix C).

5.5.7 Task 7 - System Demobilization

The system was left to NASA at the end of the Main Recirculation Phase, to conduct the Interim Measure Recirculation Phase. At the end, the system was idled. NASA may decide to perform further remediation at Hot Spot 1 in the future partly utilizing some of the infrastructure in place.

5.5.8 Waste Disposal

Because the DEM/VAL system involved groundwater recirculation, only minimal waste was produced. All soils and liquids generated during drilling/coring, well purging and equipment cleaning were containerized by the drilling or sampling personnel in approved Department of Transportation (DoT) drums and placed on spill pallets provided by NASA. Investigation derived waste (IDW) characterization results were provided to NASA to facilitate proper disposal in accordance with applicable regulations and NASA standard site protocols.

5.6 SAMPLING METHODS

The sampling plan was designed to collect sufficient data to validate the performance of the PED technology under actual site conditions and allow potential end users to evaluate the technology. Table 2 summarizes the number and frequency of sample collection, types of samples, and analytes of interest. Table D-1 Appendix D provides details of the various groundwater sampling events. Table 4 presents the laboratory analytical methods used for the selected sample analyses. The soil and groundwater samples collected were analyzed for organic and inorganic parameters by methods specified in the USEPA's SW846 Methods, American Standard for Testing and Materials (ASTM) test methods, or laboratory-specific methods.

Sampling activities for the DEM/VAL, including field measurements, sample collection, decontamination, and documentation were performed in accordance with FDEP Standard Operating Procedures (SOPs) for Field Activities (DEP-SOP-001/01) dated March 31, 2008 (effective December 3, 2008) (FDEP, 2008) and the NASA Sampling and Analysis Plan (NASA, 2006). Appendix F contains a summary of the quality control and quality assurance metrics for the DEM/VAL.

TABLE 4. ANALYTICAL METHODS FOR SAMPLE ANALYSIS

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Matrix	Analyte	Method[1]	Sample Container	Preservative	Holding Time
Soil	VOCs (includes nBA and n-butanol)	5035/8260C	4 oz. soil jars	Cool to 4ºC +/- 2ºC	14 days
	Fraction of Organic Carbon	Combustion [2]	4 oz. soil jars	Cool to 4ºC +/- 2ºC	28 days
	Total Organic Carbon	EPA LKahn 7-27-1988	4 oz. soil jars	Cool to 4ºC +/- 2ºC	28 days
	Grain Size Distribution	ASTM D 422 with hydrometer	Sealable plastic	None	None
	Microbial Characterization	Gene-Trac-Dhc (Method 1)[3] Gene-Trac-VC (Method 2)[3]	50 mL screw cap tube	Cool to 4ºC +/- 2ºC	10 days
Groundwater	Field Parameters (DO, ORP, pH, conductivity, temperature)	Field	NA	NA	NA
	VOCs (includes nBA and n-butanol)	8260C	3 x 40 mL VOA	cool to 4ºC +/- 2°C	7 days
	Dissolved Hydrocarbon Gases	RSK175	2 x 40 mL VOA	Cool to 4ºC +/- 2°C, preserved with HCl	14 days
	Volatile Fatty Acids	HPLC	250 mL HDPE	Cool to 4ºC +/- 2ºC	28 days
	Anions (chloride, nitrate, nitrite, sulfate)	300.0/353.2	125 mL HDPE	Cool to 4ºC +/- 2ºC	28 days (Nitrate/Nitrite 48 hours)
	Tracers (Bromide and Iodide)	300.0	125 mL HDPE	Cool to 4ºC +/- 2ºC	28 days
	Alkalinity	2320B	250 mL HDPE	No headspace, cool to 4ºC +/- 2ºC	14 days
	Dissolved Metals (arsenic, iron, manganese)	6010C	500 mL HPDE	field filtered prior to acid preservation with HNO_3 to pH <2, cool to 4ºC +/- 2°C	6 months
	Sulfide	SM 4500-S2- F	500 mL HPDE	Zinc Acetate and NaOH	7 days
	Total Organic Carbon	9060/9060A	250 mL plastic bottle	field filtered prior to acid preservation or filtered in lab within 48 hours of collection prior to acid preservation with H_2SO_4 to pH <2, cool to 4ºC +/- 2°C	28 days
	Microbial Characterization	Gene-Trac-Dhc (Method 1)[3] Gene-Trac-VC (Method 2)[3]	1 L HDPE	Cool to 4ºC +/- 2ºC	10 days

Notes:

1 - United States Environmental Protection Agency Method Number

2 - University laboratory method. Combustion in quartz tube furnace with infrared detection of carbon dioxide produced.

3 - SiREM Method (non-EPA). Genetic probe method using quantitative polymerase chain reaction (qPCR) analysis of the 16S rRNA gene (i.e., Gene-Trac-Dhc analysis) or the qPCR method used to quantify the Dehalococcoides vinyl chloride reductase (vcrA) gene (i.e., Gene-Trac-VC analysis).

ºC - degrees Celsius
Dhc - Dehalococcoides
DO - dissolved oxygen
H_2SO_4 - sulfuric acid
HCl - hydrochloric acid
HDPE - high density polyethylene
HNO_3 - nitric acid
L - liter
mL - milliliter
NA - not applicable
ORP - oxidation reduction potential
PED - Partitioning electron donor
SiREM - SiREM Laboratories, Guelph, Ontario
VOA - volatile organic analysis
VOC - volatile organic compounds

5.7 SAMPLING RESULTS AND ANALYSIS

This section presents the results obtained during the demonstration. Several Appendices contain supporting information specifically related to the results of the PED DEM/VAL, as follows:

- Appendix B – System Installation and Baseline Characterization
- Appendix C – Operations Summary
- Appendix D – Sampling Program Tables
- Appendix E – Data Summary
- Appendix F – Quality Assurance / Quality Control (QA/QC)
- Appendix G – Laboratory Analytical Reports

The results obtained from the PED evaluation are summarized in the subsections below.

5.7.1 Evaluation of Data Quality Indicators

During the DEM/VAL, data quality was assessed through evaluation of the data quality indicators (DQIs) precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS). Appendix F contains a summary of the QA/QC completed on the data. Evaluation of the PARCCS data quality indicators was completed to ensure that data quality objectives were met. Field QA/QC data did not indicate any major data quality issues. No analytes were detected in any of the trip blanks, field blanks, or equipment blanks, indicating there was no cross-contamination or introduction of contamination during sampling or sample transport. In the majority of instances the relative percent difference (RPD) between field duplicates and parent samples was acceptable.

Laboratory QA/QC data also did not indicate any major data quality issues. For the majority of cases, there were no detections in method blanks, hold times were met, and laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) and matrix spike/ matrix spike duplicate (MS/MSD) recoveries and RPDs were within target ranges. In cases where laboratory QA/QC data were outside of data quality targets, the results are considered usable for the purposes of the study and the reported values represent estimated concentrations.

5.7.2 Baseline Characterization Activities

To characterize the baseline conditions, soil and groundwater samples were collected within the treatment zone. Soil samples were collected during well installation activities. Groundwater sampling included: a) an initial synoptic event (Task 2) to determine the initial VOC distribution within the demonstration area following well construction; b) routine sampling of the extraction wells and selected monitoring locations during recirculation to establish the baseline flux of VOCs (Baseline Flux Assessment Phase, Task 3); and c) a synoptic event to determine the VOC distribution at the end of the Baseline Flux Assessment Phase (Task 3). Appendix B contains a detailed summary of the data collection activities and Appendix E contains a summary of the

resulting data, including tabulated data from the baseline soil and groundwater sampling events. Table 2 summarizes the samples collected and Appendix D presents the groundwater sample collection program.

Operation of the recirculation systems during the Baseline Flux Assessment Phase is summarized in Appendix C. In the upper zone, 58.6 kilo gallons (kgal) were recirculated at an effective average flow rate (i.e. total volume divided by total time) of 1.16 gallons per minute (gpm), representing approximately 2.3 pore volume exchanges of the PED injection zone. In the lower zone, the cumulative volume of groundwater recirculated was 44.0 kgal, representing approximately 1.7 pore volume exchanges of the PED injection zone. The effective average flow rate for the system was 0.87 gpm.

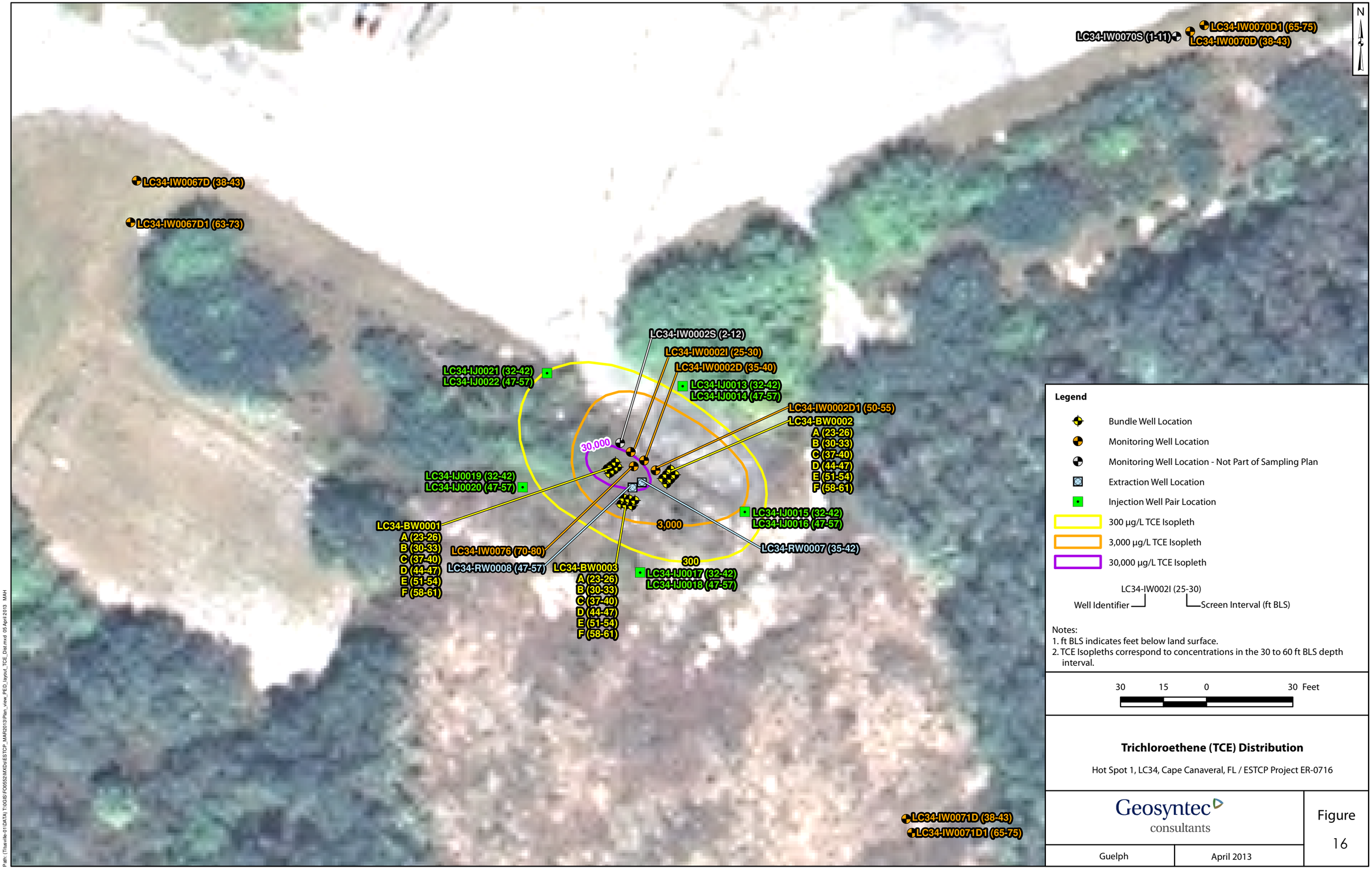
Figure 16 shows the interpolated TCE distribution before PED addition, incorporating prior data and the results of baseline sampling. Figure 17 shows the soil sampling locations for the baseline event and all subsequent soil sampling events.

5.7.3 PED and Tracer Amendment

The PED injection was completed as planned. Fluid containing PED and tracers was amended throughout the demonstration area via a set of 20 DPT injection locations. Figure 18 shows the location of the twenty PED injection locations. A total of 34,000 gallons (1,700 gallons per injection point) of fluid containing 3,000 mg/L of nBA was injected into the target depth interval from 23 to 62 ft BLS. Injection rates typically ranged from 6 to 8 gpm, requiring pressures of 30 to 45 pounds per square inch (psi). Details of the PED and tracer injection, including individual records for each injection location, are provided in Appendix C.

A total of 115 gal of nBA, with a total mass of 380 kilograms (kg), was added to the DEM/VAL area. Batch QC samples confirmed that PED and tracers were mixed as intended and that the injection fluid contained the target compounds, with average concentrations of 3,000 mg/L of nBA, 72 mg/L of bromide and 107 mg/L of iodide (when added). The batch QC results are summarized in Table E1.3 in Appendix E.

Based on the target depth intervals, 50% of the total volume, or 17,000 gal of injectate, was amended to the upper sweep zone; 15% of the volume (5,100 gal) was amended within the silty clay horizon; and 35% of the volume (11,900 gal) was amended to the lower sweep zone. A total of roughly 11.6 kg of KBr was introduced to the treatment area, resulting in 3.9 kg of bromide to the upper sweep zone, 1.2 kg within the silty clay horizon and 2.7 kg to the lower sweep zone. A total of about 11.7 kg of KI (8.9 kg of iodide) was added to the 17,000 gal introduced into the upper zone.



Trichloroethene (TCE) Distribution

Hot Spot 1, LC34, Cape Canaveral, FL / ESTCP Project ER-0716

Geosyntec consultants

Guelph | April 2013

Figure 16

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N

LC34-IJ0021 (32-42)
LC34-IJ0022 (47-57)
LC34-DPT0334
LC34-DPT0348
LC34-DPT0351
LC34-BW0001
A (23-26)
B (30-33)
C (37-40)
D (44-47)
E (51-54)
F (58-61)
LC34-IJ0019 (32-42)
LC34-IJ0020 (47-57)
LC34-DPT0333
LC34-DPT0347
LC34-DPT0350
LC34-DPT0332
LC34-DPT0346
LC34-DPT0349
LC34-BW0003
A (23-26)
B (30-33)
C (37-40)
D (44-47)
E (51-54)
F (58-61)
LC34-IJ0013 (32-42)
LC34-IJ0014 (47-57)
LC34-IW0002I (25-30)
LC34-IW0076 (70-80)
LC34-IW0002D (35-40)
LC34-IW0002D1 (50-55)
LC34-BW0002
A (23-26)
B (30-33)
C (37-40)
D (44-47)
E (51-54)
F (58-61)
LC34-IJ0015 (32-42)
LC34-IJ0016 (47-57)
LC34-RW0007 (35-42)
LC34-RW0008 (47-57)
LC34-IJ0017 (32-42)
LC34-IJ0018 (47-57)
IP19
IP03
IP04
IP13
IP14
IP12
IP11
IP05
IP02
IP20
IP01
IP17
IP16
IP06
IP10
IP09
IP07
IP18
IP08
IP15
SB1003
SB1002
SB1004
SB1001

Legend

- DPT Soil Sampling Location (label color indicates event as listed below)
  - Baseline (January 2011)
  - Post Biomass Growth (August 2011)
  - End of Main Phase (February 2012)
  - End of Interim Measure (September 2012)
- Bundle Well Location
- Monitoring Well Location
- Extraction Well Location
- Injection Well Pair Location
- PED Injection Point Location

LC34-IW002I (25-30)
Well Identifier — Screen Interval (ft BLS)

Notes:
1. ft BLS indicates feet below land surface.
2. PED indicates Partioning Electron Donor.

20 10 0 20 Feet

Soil Sampling Locations

Hot Spot 1, LC34, Cape Canaveral, FL / ESTCP Project ER-0716

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Figure 17

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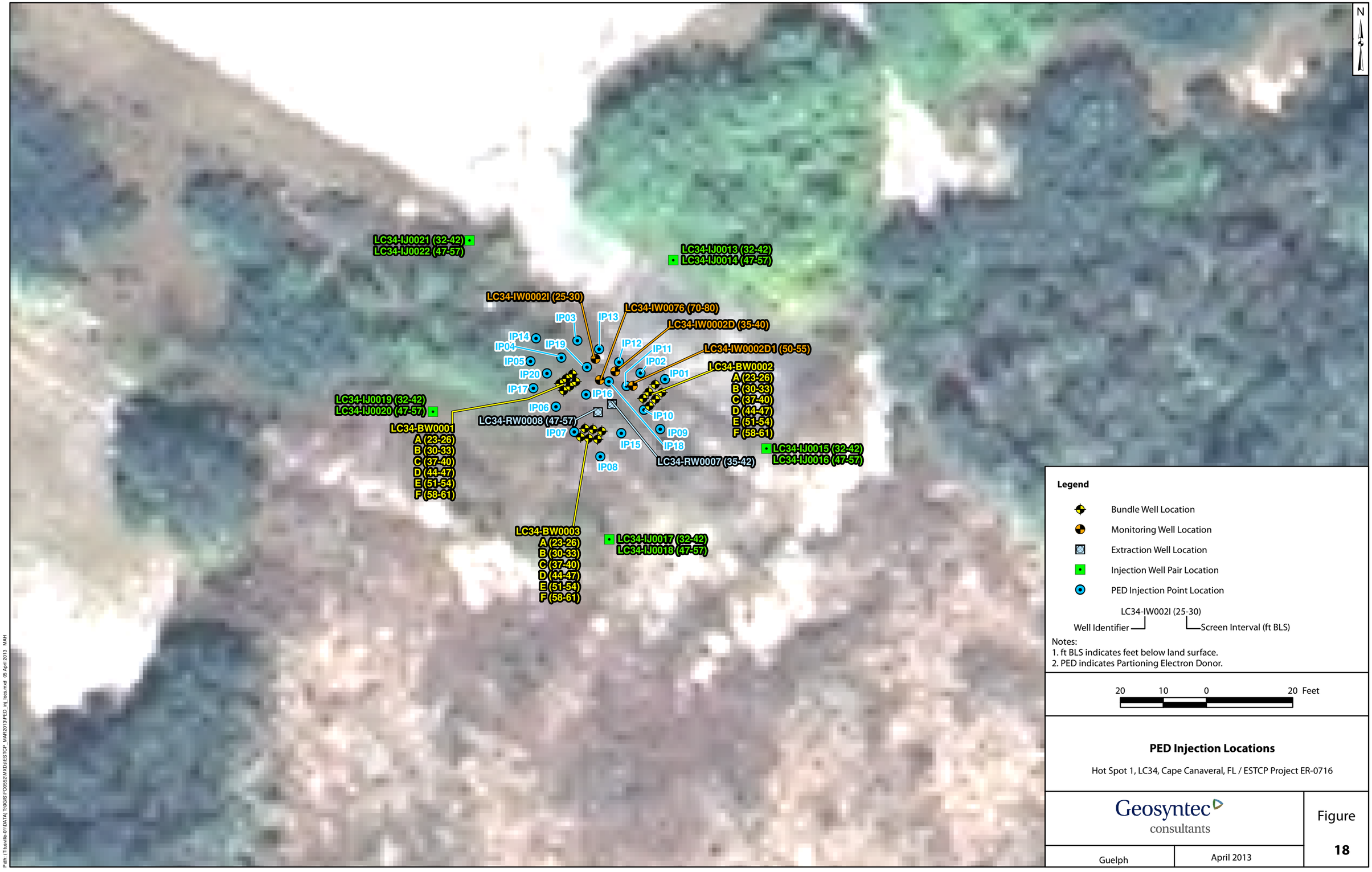

Legend

- Bundle Well Location
- Monitoring Well Location
- Extraction Well Location
- Injection Well Pair Location
- PED Injection Point Location

LC34-IW002I (25-30)
Well Identifier — Screen Interval (ft BLS)

Notes:
1. ft BLS indicates feet below land surface.
2. PED indicates Partioning Electron Donor.

20 10 0 20 Feet

PED Injection Locations

Hot Spot 1, LC34, Cape Canaveral, FL / ESTCP Project ER-0716

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Figure **18**

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Confirmation samples were collected to evaluate the effectiveness of the PED injections (refer to Appendix C). First, immediately following PED injections, DPT groundwater samples were collected adjacent to select PED injection points to assess the achieved radius of influence (see Appendix C and Table E-1-4 in Appendix E). The nBA concentrations were quite variable, both by location and depth, but this is often the case with direct push injections using conventional electron donor (e.g., with emulsified oils or lactate). The results suggested that the radius of influence was roughly 2 to 2.5 ft, consistent with the design estimates. The ratio of nBA to bromide was quite variable, suggesting that the nBA distribution may not be strongly correlated with the tracer, but the results generally showed that nBA was under-recovered relative to bromide, consistent with nBA partitioning and/or sorbing (see Table E-4-1 in Appendix E). Production of nBuOH was noted at a couple of locations, indicating that some hydrolysis had occurred within the first week (Table E-1-4).

Second, about a week after the PED injections were completed, groundwater samples were collected from a subset of the monitoring wells (see Appendix C for details). The results are presented in Appendix E. There was good distribution of nBA at these locations, with an average concentration of 400 mg/L. Also, at this point significant concentrations of nBuOH had been formed (up to 520 mg/L, with an average concentration of 184 mg/L), representing on average 38% of the PED in these samples. Table E-4-2 in Appendix E presents a comparison of the PED and tracer concentrations in these well samples. The ratio of normalized nBA concentration (considering nBA and nBuOH) to normalized bromide concentration was 0.77 on average. The normalized bromide concentrations suggested that the samples contained an average of 22% injectate, ranging from 3 to 62%. Where available, the iodide results were in agreement. The direct push injection approach that was suitable and distribution was sufficient to continue with the DEM/VAL.

5.7.4 Biomass Growth Phase

If the PED is a successful donor then a standard application would involve injection of the PED and then leaving this in place and treatment would be under ambient (i.e., unpumped) conditions. It was solely for the purposes of the DEM/VAL, to evaluate longevity and quantify effectiveness, that extraction of water was conducted. During this phase the majority of the PED occurred as nBuOH, indicating that the nBA had undergone considerable hydrolysis during this stage. Data indicates consumption of the PED due to microbial activity. The VOC concentrations in this phase indicate that considerable reductive dechlorination. This stage verified that PED injection with the direct push approach was able to provide additional donor and promote dechlorination.

As detailed in Appendix C, the recirculation system remained off for a period of six weeks following PED injection to allow the nBA to partition into NAPL within the demonstration area and to facilitate the acclimation and establishment of biomass within the demonstration plot. At the end of this period, the distribution of PED and VOCs within the demonstration area was assessed through DPT soil sampling and a synoptic survey of groundwater concentrations. These samples established the conditions prior to starting the recirculation system.

The groundwater results from this phase of the DEM/VAL are presented in detail in the various data tables in Appendix E. The nBA and nBuOH concentrations varied considerably throughout the demonstration areas, as did the TOC. The results show that the majority of the PED occurred as nBuOH, indicating that the nBA had undergone considerable hydrolysis during the shut-in period. On average, nBuOH was 84% of the total PED found (i.e. nBA plus nBuOH). The ratio of normalized total nBA concentration to normalized bromide concentration was 0.51 on average. The decrease in this ratio over the period of the shut-in period may reflect some additional partitioning and/or sorption of the PED, but it likely also reflects consumption of the PED due to microbial activity. The VOC concentrations from this event indicate that considerable reductive dechlorination had occurred. Figures 1 and 2 present the time trends for the extraction wells and show the VOC and VFA changes during the biomass growth phase.

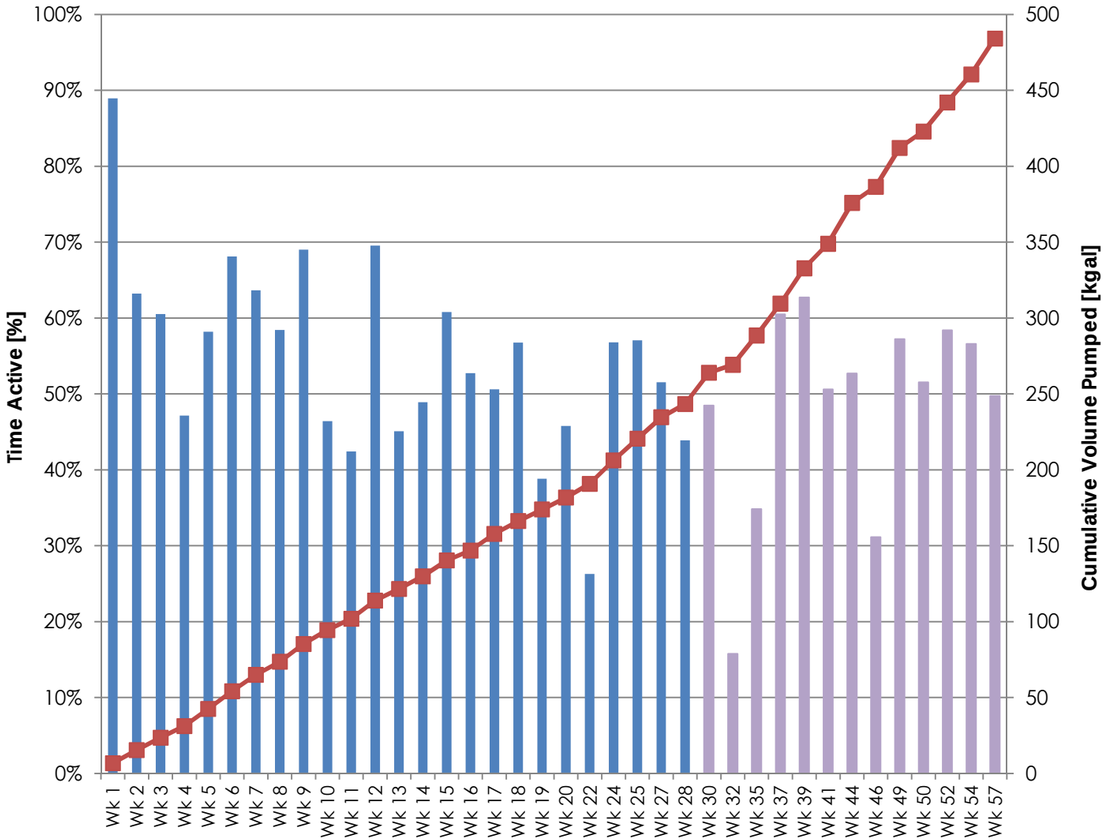
Soil samples were collected at the locations presented on Figure 17 to assess soil VOC concentrations. The VOC concentrations were highly variable with both location and depth, and overall the concentrations were greater than observed at baseline. This is attributable to natural spatial variation. Low concentrations of nBA and nBuOH were detected in some samples, but as there was no evidence in the samples collected of a NAPL phase, no correlation could be attempted.

5.7.5 Main Recirculation Phase

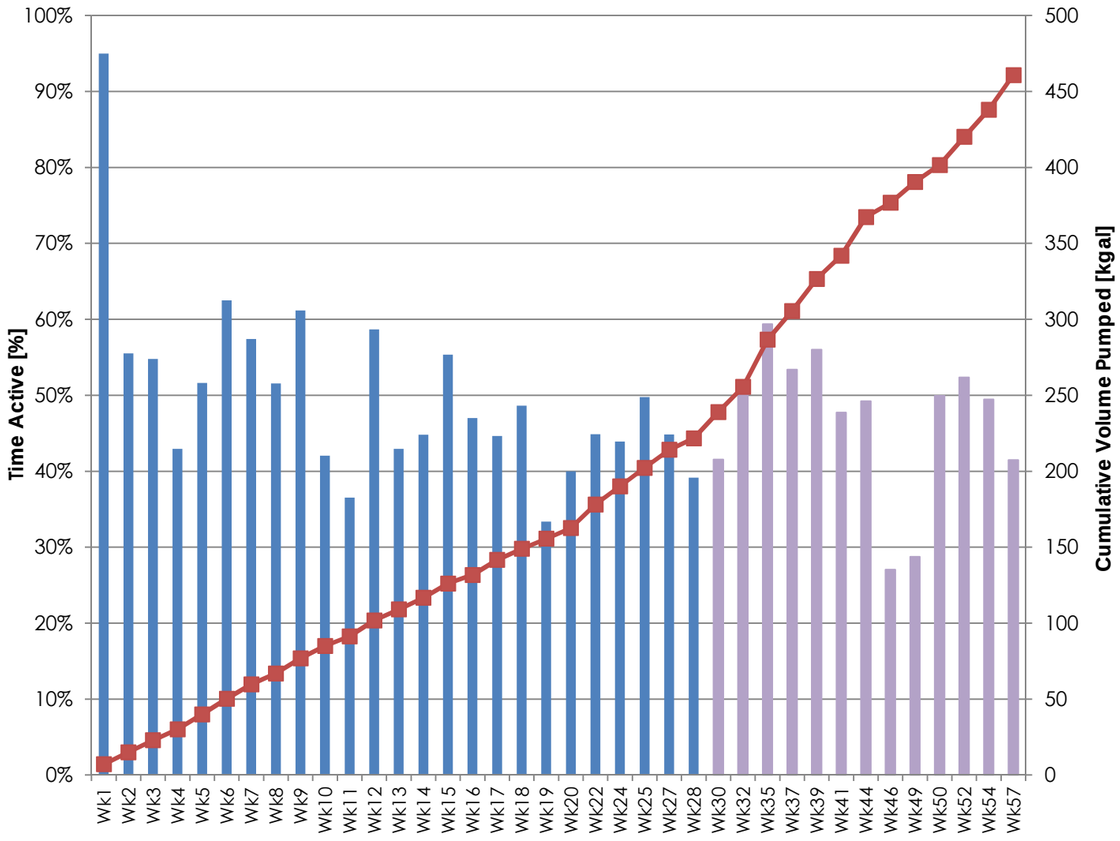
The Main Recirculation Phase occurred between 09 August 2011 and 16 February 2012. The recirculation systems generally operated as designed, although there were periods with no pumping due to limitations in the solar system. Details of the operations are reported in Appendix C, including volumes, flow rates, operating times and routine O&M information. No well rehabilitation was required. Appendix C includes hydrographs from select wells (the extraction wells, a pair of monitoring wells and a pair of injection wells). These clearly show the oscillation in water levels created by the groundwater recirculation system.

In the upper zone, 243.4 kgal were recirculated at an effective average flow rate (i.e. total volume divided by total time) of 0.89 gpm. With flow divided between five injections wells, the average effective injection rates were approximately 0.17 gpm per injection location. Overall, the system was active for about 53% of the time. Figure 19a presents the operating history for RW0007, showing the amount of time the system was active and the cumulative volume pumped over the duration of the DEM/VAL. Variations in the amount of time the system was active are apparent in Figure 19a; weather, and hence recharge of the solar-powered system was the main variable controlling system operation. It is estimated that the recirculated volume represents about 1.4 pore volumes of the sweep zone, or about 9.6 pore volume exchanges of the zone within which PED injection occurred (refer to Appendix C).

19a) RW0007



19b) RW0008



Notes:

1. Time Active represents the portion of the day in which the system operated. During this time, the pump cycled 40 minutes on, 20 minutes off.

2. The first 28 weeks (blue bars) represent the Main Recirculation System Operation Phase and subsequent weeks (purple bars) represent the Interim Measure Recirculation System Operation Phase.

3. Readings are not evenly distributed over time; less frequent recordings at later time create appearance of greater pumping rate (slope).

Operating History
RW0007 & RW0008
Launch Complex 34, Cape Canaveral, FL

Geosyntec consultants

Guelph | October 2013

Figure **19**

P:\PRJ\Projects\180272 - ESTCP_PED\04 ESTCP Reporting\21 Final Technical Report\03 FIGURES\[Figure 19b&b.xlsx]Fig 19b_b

Figure 19b summarizes the operating history for RW0008. A total of 221.6 kgal were recirculated in the lower zone at an effective average extraction flow rate of 0.81 gpm (average effective injection rates of approximately 0.16 gpm per injection location). The system was active for about 48% of the time, slightly less than in the upper zone (9% less). The recirculated volume represents about 1.7 sweep zone pore volumes, or about 8.8 pore volume exchanges of the PED injection zone (refer to Appendix C). These estimates of pore volume exchanges demonstrate that considerably more groundwater was recirculated than was initially amended with PED. This means the PED was sorbed and it stayed in place.

5.7.5.1 Groundwater Sampling - Main Recirculation Phase

Throughout the Main Recirculation Phase, groundwater samples were routinely collected to assess the VOC mass flux and evaluate the microbial reductive dechlorination of VOCs. Groundwater sampling is described in Appendix C and details of the sampling program are provided in Appendix D. The extraction wells were the main focus for routine sampling, with weekly sampling for the first month and then bi-weekly sampling thereafter. Synoptic surveys (snapshots) of the entire DEM/VAL plot, including extraction wells, bundle monitoring wells, existing site monitoring wells and the far-field monitoring wells (30 wells in total) was conducted at Month 3 (October 2011) and at Month 7 (February 2012). The types and numbers of samples are summarized in Table 2. The results are tabulated and presented in graphical form in Appendix E and discussed further below.

5.7.6 Interim Measure Recirculation Phase

Following the Main Recirculation Phase, the recirculation system was operated for an additional seven months, from 17 February 2012 through 13 September 2012, under an IMWP for NASA. Details of the operation are presented in Appendix C and summarized in Section 6. Figures 15 and 16 include the operating history for RW0007 and RW0008, respectively, during this Interim Measure Recirculation Phase.

System operation was essentially the same as during the prior phase; the average effective extraction rates at RW0007 and RW0008 were 0.82 gpm and 0.81 gpm, respectively (see Appendix C). Hydrographs for RW0007 and RW0008 for the period of operation are presented in Appendix C. The recirculated volume for the upper sweep zone was 240.9 kgal, representing an additional sweep zone 1.9 pore volumes, or approximately 9.5 additional exchanges of the PED injected area. In the lower sweep zone, the recirculated volume was 239.2 kgal, representing an additional 1.8 pore volumes, or approximately 9.5 additional exchanges of the PED injected area (see Appendix C).

5.7.6.1 Groundwater Sampling – Interim Measure Recirculation Phase

The groundwater sampling program was continued during the Interim Measure Recirculation Phase. Routine monthly samples were collected from the extraction wells, and synoptic surveys

were collected in Month 10 (June 2012) and at the end of operation in Month 13 (September 2012). Groundwater sampling is described in Appendix C and details of the sampling program are provided in Appendix D. The types and numbers of samples are summarized in Table 2. The results are tabulated and presented in graphical form in Appendix E and discussed further in the sections below.

5.7.7 Soil Sampling

Soil sampling activities are described in Appendix C. Soils samples were collected at the end of the Main Recirculation Phase (Month 7) and at the end of the Interim Measure Recirculation Phase (Month 13). The sampling locations, shown in Figure 17, corresponded to the locations sampled following the Biomass Growth Phase, to facilitate comparison over the course of the DEM/VAL. Table 2 presents the number of samples collected and soil VOC results are summarized and presented in Table E-1-1 in Appendix E.

Post PED injection, soil samples collected indicated PED was not present at the sampled locations. The PED, nBA, was only detected in a few locations, at very low concentrations. Minor amounts of nBuOH were observed in a couple of samples.

Similar results were obtained at the end of the Main Recirculation Phase (Month 7), with maximum TCE concentration of 75 mg/kg^{dry} at DPT0348. Again spatial variability appeared to be more significant than changes due to operation of the DEM/VAL. Similar results were obtained at the end of the Interim Measure Recirculation Phase (Month 13), with maximum TCE concentration of 75 mg/kg^{dry} at DPT0350. There was again considerable spatial variability.

Although it is admittedly a crude approach, all of the results for each event were averaged together to develop an average soil concentration (see table below) to estimate TCE and cDCE in soils at the locations sampled. There is some decline in the amount of TCE detected over the course of the DEM/VAL, from the end of the Biomass Growth Phase to the end of the Main Recirculation Phase (Month 7) to the end of the Interim Measure Recirculation Phase (Month 13). Note that baseline is quite different because it represents a different set of locations. However, the analysis is not very robust, given the observed degree of spatial variability.

Average Soil Concentrations (mg/kg)

	TCE	**cDCE**
Baseline	3.60	2.35
Post Biomass Growth	21.27	2.89
Post Main Recirculation Phase (Month 7)	13.07	5.83
Post Interim Measure Recirculation Phase (Month 13)	10.23	5.70

5.7.8 Groundwater Sampling Results

Groundwater samples collected from the central extraction wells (RW0007 and RW0008) make up the primary data set, which includes field parameters, VOCs, nBA, n-butanol, DHGs, VFAs, alkalinity, anions, dissolved metals, and microbial characterization numbers. Additional data was collected during synoptic events from the entire monitoring well network and used to support the interpretation.

Appendix E presents a summary of all of the analytical data collected for the DEM/VAL, including the extension referred to as the Interim Measure Recirculation Phase conducted for NASA's IMWP.

All of the data collected for the DEM/VAL is tabulated in Appendix E. There are several supporting attachments in Appendix E that contain the tabulated and graphed data collected during the DEM/VAL. A summary of key tables and figures is provided below.

Attachment E-1 contains summary tables for key groundwater parameters collected, including:

- Summary of PED Injectate Batch QC Sampling Results to verify the PED injected to the demonstration area (Table E-1-3)
- Summary of PED Injection Confirmation Grab Groundwater Sampling Results (Table E-1-4_
- Groundwater Sampling Results: Volatile Organic Compounds (Table E-1-5)
- Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers (Table E-1-6)
- Groundwater Sampling Results: TOC, VFAs and nBA (Table E-1-7_
- Groundwater Sampling Results: Dissolved Metals (Table E-1-8)
- Groundwater Sampling Results: Field Geochemical Parameters (Table E-1-9)
- Groundwater Sampling Results: *Dhc* and Vinyl Chloride Reductase (Table E-1-10)

Attachment E-2 presents time-series plots of selected analytes for each monitoring well location. For each monitoring location there is a set of four time-series plots, as follows:

A) VOC data using molar concentrations;
B) electron donor results, including nBA, nBuOH, VFA and TOC concentration data;
C) bromide and iodide tracer concentrations through the end of the Main Recirculation Phase (these analytes were not part of the sample program in the Interim Measure Recirculation Phase); and
D) geochemical parameters, including methane, ethane, sulfate and sulfide concentrations.

Attachment E-3 presents the VOC distribution history for each monitoring well location in the form of a stacked bar chart, which shows how the total VOC concentrations varied over time as

well as how the composition varied. These figures show the changes in total VOC concentration that were observed following PED addition.

Attachment E-4 provides a summary of the data analysis for assessing the impact of PED addition based on the conservative tracers amended during PED injection. A comparison of PED and tracer concentrations was conducted to confirm the experimental design was valid and to aid in confirming objective 3.6 (delivery of PED to source area). The tracer data collected and analyzed confirmed that PED was delivered to the source area and that it persisted for over 8 months of groundwater extraction/recirculation.

Attachment E-5 includes data analysis of the extraction wells to support the determination of the qualitative and quantitative objectives on PED effectiveness.

Attachment E-6 contains the supporting tables for the estimation of VOC and TVOC mass in the treatment zone over the operational period.

The following subsections present summaries of the key groundwater parameters.

5.7.8.1 VOC Trends

For the upper zone, VOC data from the central extraction well RW0007 (tabulated in Table E-1-5) is presented as a time-series in Figure 3a, including the Initial Baseline and Baseline Flux Assessment results. Figure 3b presents the time-series VOC data for the lower zone from the central extraction well RW0008. Other parameters (electron donors, tracers, and geochemical parameters) measured at the extraction wells are plotted in Appendix E (Attachment E-2). Figure 20 shows the VOC distribution history for RW0007 and RW0008, respectively. Appendix E similarly presents time-series plots (Attachment E-2) and VOC distribution plots (Attachment E-3) for the other monitoring locations.

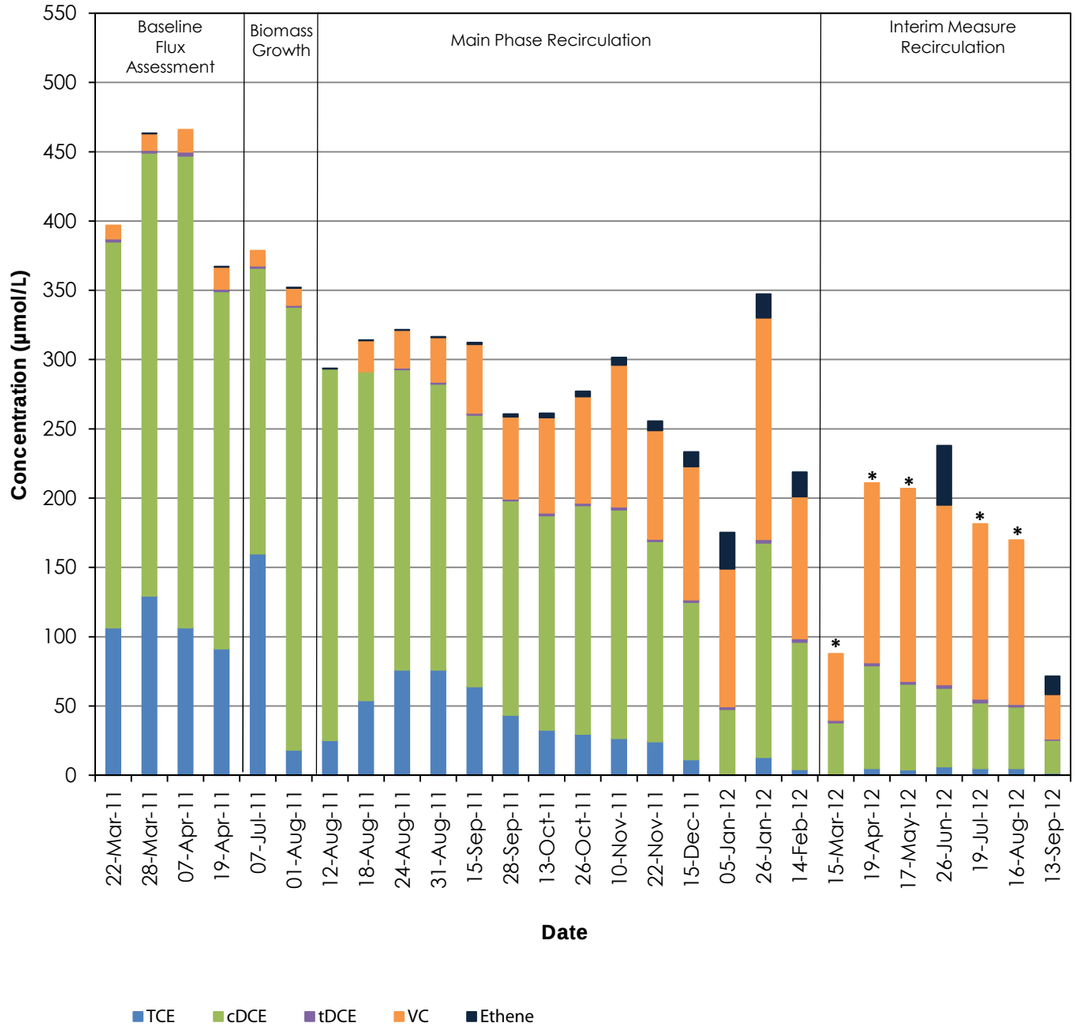
For the upper zone, Figure 20a illustrates that the total VOC flux to RW0007 during the Main Recirculation Phase was less than during the Baseline Flux Assessment Phase, whereas the PED was anticipated to increase the TVOC flux. During Baseline Flux Assessment weekly samples were collected to assess VOC concentrations under pumping conditions. The TVOC concentration and the VOC distribution were stable in the baseline flux phase, with cDCE being the primary VOC. The presence of cDCE is attributed to the larger VOC plume associated with the source area beneath the ESB (refer to Section 4 above). TCE and CFC113 concentrations were also stable (Figure 3a). The concentration of TCE had decreased considerably by the end of the Biomass Growth Phase as a result of PED addition. Over the course of the Main Recirculation Phase, TCE and cDCE concentrations decreased while VC and Ethene concentrations increased, indicating that reductive dechlorination was active. This trend continued through the Interim Measure Recirculation Phase. It is noted that the continued presence of CFC113 may have limited reaction rates in the upper zone.

For the lower zone, Figure 20b illustrates that the total VOC flux to RW0008 during the Main Recirculation Phase was considerably greater than during the Baseline Flux Assessment Phase, indicating that PED addition increased the TVOC flux as anticipated. Note that the concentrations are considerably lower in the lower unit. During Baseline Flux Assessment weekly samples were collected to assess VOC concentrations under pumping conditions. The TVOC concentration and the VOC distribution were stable. TCE was the primary VOC and the cDCE concentration was about half that of TCE. The halo of the ESB plume was not observed in the lower zone at Hot Spot 1. During the Biomass Growth Phase there were strong indications of reductive dechlorination activity. The confirmation samples in July 2011 indicated a significant increase in the TVOC concentration, primarily attributed to cDCE and then the samples at the end of the shut-in period indicated that all of the VOCs at RW0008 had been converted to VC and ethene. Once recirculation was started, groundwater containing TCE and cDCE was drawn to the well. Over the course of the Main Recirculation Phase, TCE concentrations fluctuated somewhat but did not sustain a concentration below baseline until the Interim Measure Recirculation Phase. Concentrations of less-chlorinated products, cDCE, VC and Ethene increased over the operation of the DEM/VAL, indicating that reductive dechlorination was active. This trend continued through the Interim Measure Recirculation Phase.

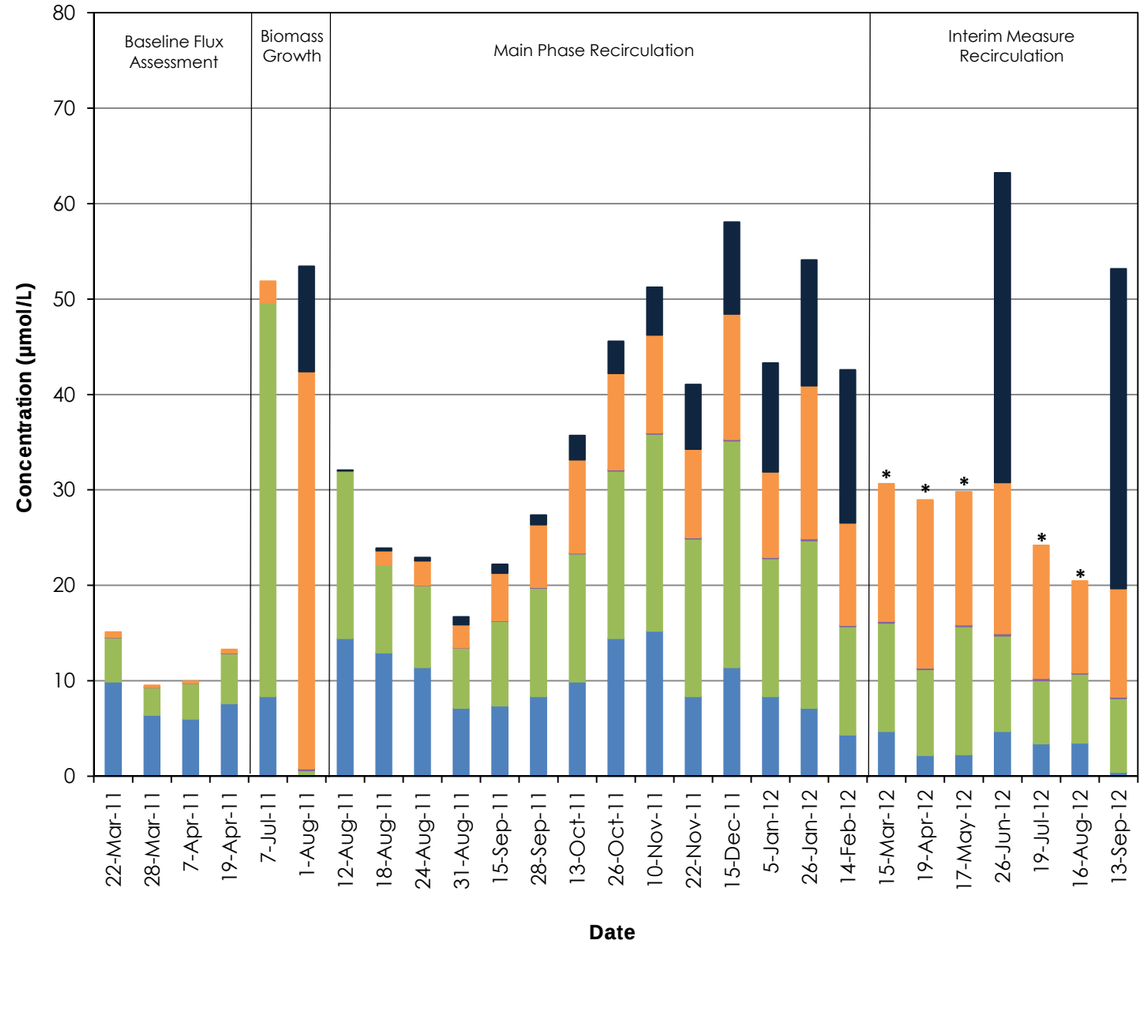
The extent of reductive dechlorination was characterized by calculating the fraction of chlorine removed from the equivalent concentration of TCE, as described in Appendix E. The quantitative analysis of the extent of dechlorination is illustrated in Figure 4a for RW0007 and Figure 4b for RW0008, respectively. Note that complete conversion to DCE, VC, and ethene would correspond to dechlorination scores of 33%, 67% and 100%, respectively. These figures show that over the course of the DEM/VAL, both the upper and lower zones shifted increasingly toward complete dechlorination.

Figure 21 shows the estimated TVOC mass in the treatment zone based on the observed groundwater concentrations. The total mass of TCE, cDCE and VC is seen to decrease over the period of operation of the DEM/VAL.

20a) RW0007



20b) RW0008



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride
* - no analysis for ethene

Volatile Organic Compound Distribution History
RW0007 & RW0008
Launch Complex 34, Cape Canaveral, FL

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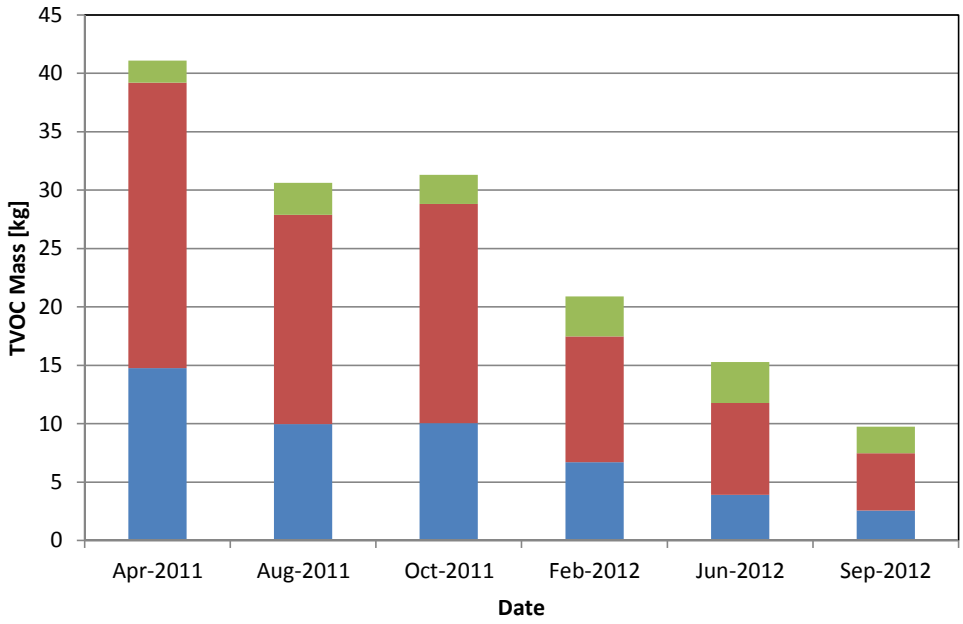
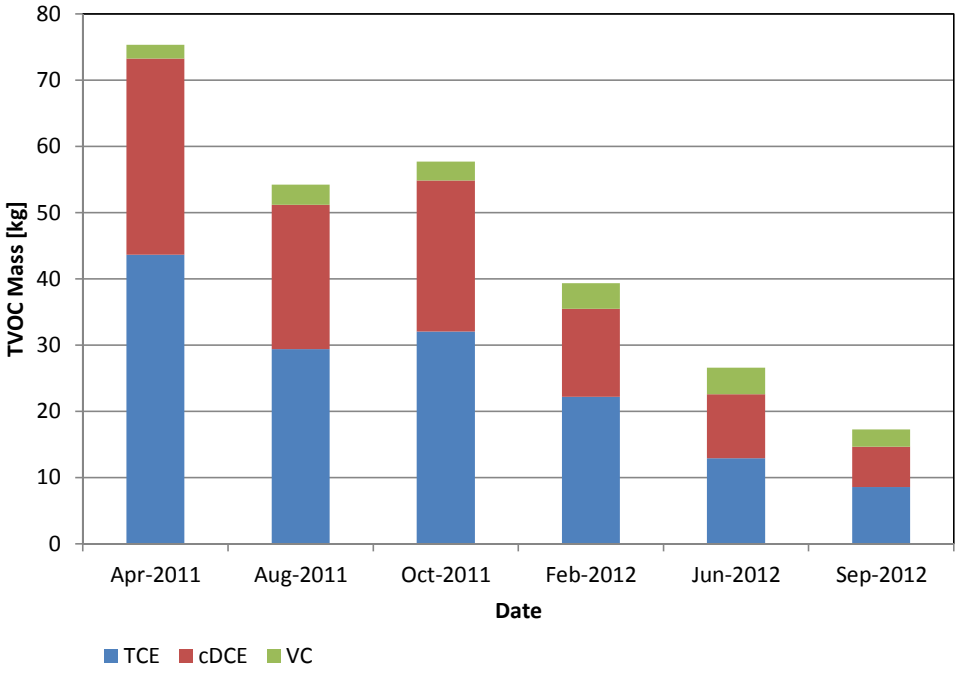
Figure **20**

P:\PE\Projects\TR0272 - ESTCP PEDOM ESTCP Reporting\V3 Final Technical Report\003 FIGURES\[Figure 20a&b.xls]Fig 20b_b

A) Dissolved Phase VOC Mass



B) Total VOC Mass (Dissolved plus Sorbed)



Notes:

1. TVOC mass is estimated as the sum of TCE, cDCE and VC (i.e., does not include CFC113).
2. Mass of each VOC in the treatment zone plume is the sum of the estimated mass in each zone (upper, middle and lower). VOC mass in each zone is estimated using the average VOC concentrations at all monitoring locations in that zone and the volume of groundwater in the zone.
3. TVOC mass with sorption is estimated using compound-specific retardation coefficients for each zone.

Treatment Zone TVOC Mass Estimates over Operation of the DEM/VAL
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Figure 21

P:\PRJ\Projects\TR0272 - ESTCP - PED\04 ESTCP Reporting\21 Final Technical Report\05 APPENDICES for FTR\E-Data Summary\Attach E-6_Plume Mass Estimates\Plume Mass Calcs.xlsx

5.7.8.2 Electron Donors - nBA and nBuOH, TOC and VFAs

The concentrations of nBA, nBuOH, VFAs and TOC are tabulated in Table E-1-6 and plotted in time-series figures in Attachment E-2 for each monitoring location. Donor concentrations observed at the central extraction wells, RW0007 and RW0008 in terms of the amount of carbon (i.e. mmol C/L) indicates the PED was a suitable electron donor and provided a sustained source of donor (refer to Tables E-5-5 and E-5-10 in Attachment E-5).

In water, nBA undergoes hydrolysis to form acetate and n-butanol. The n-butanol is utilized by fermenting organisms to produce butanoate, acetate, and hydrogen. Early time data, collected 9 days after completing the PED injection (PED injection occurred over a 9 day interval from 20 June 2011 to 28 June 201), indicated that, on average, n-butanol made up 38% of the total nBA equivalents detected in groundwater (the proportion of total nBA equivalents that was n-butanol ranged from 14% to 54%). After an additional 24 days (on 01 August 2011 & 02 August 2011), n-butanol comprised 84% of the total nBA equivalents detected. These data suggest that nBA underwent relatively rapid hydrolysis following its introduction to the DEM/VAL plots. Very little nBA was detected in groundwater samples collected from the extraction wells after the Biomass Growth phase; low concentrations were observed at the extraction wells during the Week 1 sampling (refer to Table E-1-5 in Appendix E), three days after groundwater recirculation was initiated, but not beyond that. At the Month 3 synoptic sampling, nBA was only observed at two of the bundle monitoring locations, BW0001B and BW0001D. nBuOH was present in extracted groundwater from RW0008 for only two weeks following system start-up and from RW0007 for four weeks. nBuOH was not detected in week 6, although low estimated concentrations of nBuOH were subsequently observed at RW0007 during weeks 8 through 12 suggesting that hydrolysis occurred.

Despite the relatively quick depletion of the nBA and nBuOH, the concentration of TOC did not decline as rapidly. TOC concentrations were sustained in both the upper and lower sweep zones, with the TOC concentration in the upper zone (RW0007) remaining above 100 mg/L though week 28 while in the lower zone (RW0008) remaining above 40 mg/L through week 28. After six more months of operation, TOC in the upper unit had decreased to 9.6 mg/L, or just above background levels, while in the lower unit the TOC declined to 27 mg/L.

VFAs accounted for most of the TOC, with acetate and butanoate being the most abundant VFAs identified in groundwater samples, along with minor amounts of propionate. When present, such as at early time, nBA and/or nBuOH contributed to the TOC. While acetate was a major component of the VFA, there was a significant contribution from butanoate, particularly in the upper zone. At RW0007, butanoate represented an average of 46% of the carbon occurring as VFAs over the initial 28 weeks of operation; the proportion was as high as 58% in week 4, declining to 27% by week 28. At RW0008, butanoate represented a smaller proportion of the VFA carbon, averaging 21% over the 28 weeks of recirculation, with a high of 47% in the first week declining to about 7% by the end of the DEM/VAL in week 28. Propionate made up 2 to 3% of the VFAs (as carbon) in both zones. The reason for the different relative composition of

the VFAs in the upper and lower zones is not known, but may reflect differences in the microbial populations responsible for fermentation of the various donor compounds. The difference may also reflect differences in the amount of nBA partitioned into NAPL and/or sorbed to the matrix; if more nBA was in fact sequestered in the upper zone, the higher proportion of butanoate observed here may have been the result of sustained release of nBA from residual NAPL and/or sorption sites.

The fact that nBA addition leads to the sustained supply of butanoate is a noteworthy feature of the technology. Soluble donors such as lactate and ethanol are more quickly consumed and TOC in these systems is quickly dominated by acetate. Also, butanoate has been shown to result in less methanogenesis than ethanol or lactate, because butanoate produces lower levels of hydrogen (Fennell et al., 1997).

5.7.8.3 Tracers

The tracer data is presented and analyzed in Appendix E. The concentration of bromide in extraction well RW0007 was always higher than that from RW0008, on average by a factor of about 3 (refer to Table E-1-6). The greater sustained concentrations at RW0007 suggest that more bromide mass was introduced to the upper sweep zone than the lower. No iodide was ever detected in monitoring locations in the lower zone, indicating that there was no significant movement of fluid from the upper sweep zone to the lower sweep zone. It was also noted that differences in the iodide and bromide recovery suggest that iodide may not have been conservative in the upper demonstration area.

Because PED was not detected in many samples after the first few weeks of operation, the bromide data was of limited utility to estimate partitioning. It did however serve as a tracer of the injection fluid and could be used to estimate the amount of blending that had occurred.

Average tracer concentrations at the end of the Main Recirculation Phase were used to estimate how much groundwater had been recirculated relative to the pore volume (refer to Appendix E). For the upper zone, this resulted in a rough estimate of 1.9 sweep zone pore volume replacements, which is in agreement with the estimate based on area and depth (refer to Appendix C). For the lower zone, this resulted in a rough estimate of 0.9 sweep zone pore volume replacements, which is somewhat lower that the estimate based on area and depth (refer to Appendix C).

5.7.8.1 Field Parameters

The field parameter data is summarized in Appendix E. The pH was generally about 7.5, varying somewhat spatially and temporally, but without apparent trends. Maintenance of neutral pH is conducive to promoting reductive dechlorination. The oxidation reduction potential (ORP) and dissolved oxygen (DO) concentrations indicated that suitable reducing conditions (ranging from sulfate reducing to methanogenic) were maintained throughout the DEM/VAL. Toward the

end of the Interim Measure Recirculation Phase, the ORP became less negative in the upper zone and DO concentrations increased slightly, to about 1.0 mg/L in both zones.

5.7.8.2 Geochemical Indicator Parameters

The geochemical indicator data, including DHG concentrations, is summarized in Appendix E. The methane and ethane data, as well as the sulfate and sulfide data for each monitoring location are plotted in the 'd' series of figures in Attachment E-2. Ethene is plotted with the chlorinated ethenes in the 'a' series of figures in Attachment E-2.

Production of ethene was observed in both the upper and lower zones, confirming that complete dechlorination of the parent VOCs (TCE, cDCE) through VC was occurring. Ethane was detected at many locations following PED addition. For example, at Month 3, the average ethane concentration in the upper zone was 25 µg/L, while in the lower zone it was 5 µg/L. Ethane is produced by the reduction of ethene, which is produced from dechlorination of TCE, cDCE and VC.

Methane was present in the groundwater from the beginning of the DEM/VAL, in the upper zone more so than the lower, with average baseline concentrations of 80 µg/L and 7 µg/L, respectively. Methane concentrations increased significantly over the course of system operation in both the upper and lower zones (refer to Appendix E). For example, at the Month 7 synoptic event, the average concentrations of methane were 290 µg/L and 330 µg/L in the upper and lower zones, respectively.

Sulfate concentrations were generally observed to decrease, while sulfide concentrations increased, indicating that the reducing conditions created by the addition of the PED stimulated indigenous sulfate reducing bacteria (refer to Appendix E).

5.7.8.3 Metals

Concentration data for dissolved Arsenic, Iron and Manganese over the course of the DEM/VAL are presented in Appendix E (Table E-1-8 in Attachment E-1). These species are known to be redox sensitive and are more mobile in their reduced forms. Dissolved Arsenic was not detected; dissolved Iron was observed initially at low levels; and dissolved Manganese was observed in most samples at low concentrations of 20 to 30 µg/L (below the FDEP GCTL of 50 µg/L). Manganese concentrations generally reached peak values at the end of the Biomass Growth Phase and then returned to background levels.

5.7.8.4 Molecular Characterization

The results of microbial characterization are presented in Appendix E (Table E-1-10 in Attachment E-1). Groundwater samples were analyzed to determine the presence and abundance of *Dhc* organisms, microbes that are capable of reductive dechlorination of chlorinated ethenes. Six locations were monitored over the course of the DEM/VAL, three in the upper sweep zone

(BW0001C, BW0003C and RW0007) and three in the lower sweep zone (BW0001E, BW0003E and RW0008). Baseline samples indicated that TCE-dechlorinating bacteria are native to the site; however, the number of *Dhc* organisms was relatively low. The Month 3 samples showed significant increases in *Dhc* organism numbers, with similar results over the course of the DEM/VAL indicating that the microbial population was sustained by the electron donors available with the plots.

In addition, the vinyl chloride reductase (*vcr*A) assay results confirmed that the native *Dhc* was capable of degrading VC to ethene efficiently. Data from the extraction wells indicated that initially the *vcr*A component made up only about 5% of the *Dhc*, but that over the course of operation the proportion of *Dhc* organisms that contained the *vcr*A component grew to be essentially 100%. This suggests that by Month 10 the entire *Dhc* microbial population had the capability of degrading vinyl chloride to ethene efficiently.

6 PERFORMANCE ASSESSMENT

6.1 EASE OF IMPLEMENTATION (QUALITATIVE)

To increase the likelihood that the PED technology will be adopted as an approach to source zone bioremediation, it should be straightforward to implement. Ease of implementation using standard equipment and application methods is an important benefit of the PED technology.

The ease of implementation was evaluated based on the experience of field staff and the actual availability and costs of installed equipment. The success criterion for this objective is that PED amendment to the source area is effectively achieved using readily available equipment.

This objective was achieved based on experience with the actual injection of nBA (the PED) at the Site. PED was successfully introduced to the source area using readily available direct-push injection equipment. The injection contractor performed essentially standard injections with a few extra precautions (e.g. bonding and grounding) for handling the pure nBA. Field application of nBA was deemed comparable to traditional soluble donor amendment in terms of equipment, time and effort, once the field crew were educated about nBA handling. The equipment required for the solar-powered recirculation system was also standard issue, readily available through local suppliers and assembled by technicians with training in basic plumbing techniques. Ease of implementation using standard equipment and application methods is an important benefit of the PED technology, since this facilitates it being adopted as an approach to source zone bioremediation.

6.2 ABILITY TO PROMOTE BIODEGRADATION (QUALITATIVE)

To be effective, the PED must have promoted biodegradation of the target contaminants. The reduction in contaminant mass is a function of the degree to which biodegradation was promoted in the subsurface. Due to budget constraints, a new control plot was not established for the DEM/VAL, but the project used the results from a prior pilot-scale demonstration at LC34 (Battelle, 2004; Hood et al., 2008) to compare PED efficiency to a soluble donor system (the previous study used ethanol). Addition of any electron donor can promote growth (biomass) which will in turn accelerate the consumption rate of donor (i.e., the donor consumption rate will vary in time and space) and as such it was not possible to statistically assess equivalent bioactivity between the prior study and the PED demonstration. Note that the goal was not to stimulate equivalent bioactivity – the prior LC34 demonstration experienced biofouling and maintenance to control biofouling was a significant cost. The goal was to demonstrate that the PED (nBA) could be utilized by the native dechlorinating microorganisms and had the ability to promote biodegradation of TCE.

The ability to promote biodegradation using the PED technology was evaluated on the basis of increases in the concentrations of dechlorination breakdown products and increases in the

population of microorganisms capable of dechlorination. Reductions in concentration of the parent compounds also contributed to the evaluation of biodegradation activity.

Groundwater samples were collected prior to donor amendment to establish baseline VOC concentrations and microbial numbers; groundwater samples were then collected over time during the demonstration to monitor changes in concentration and/or microbial numbers.

This objective was confirmed by the increases in the concentration of degradation products (cDCE, VC and ethene) from the reductive dechlorination of TCE and increases in the population of dechlorinating microorganisms in response to PED addition (Figure 4). In both the upper and lower demonstration areas, sustained production of dechlorination products, including ethene, was observed, demonstrating that the PED (nBA) could be utilized by the native dechlorinating microorganisms and thus had the ability to promote biodegradation of TCE.

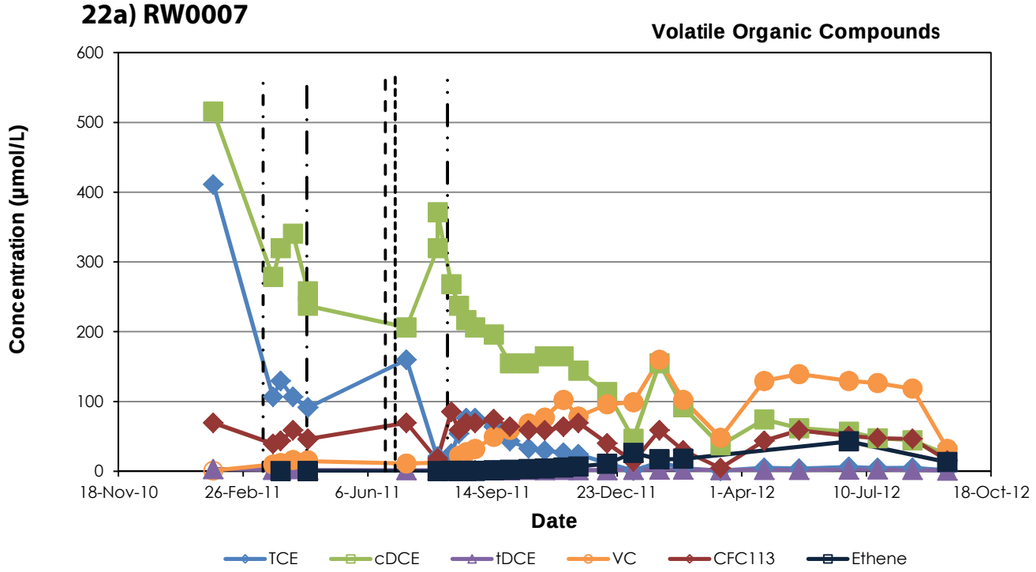
6.3 LONGEVITY OF ELECTRON DONOR SUPPLY (QUALITATIVE)

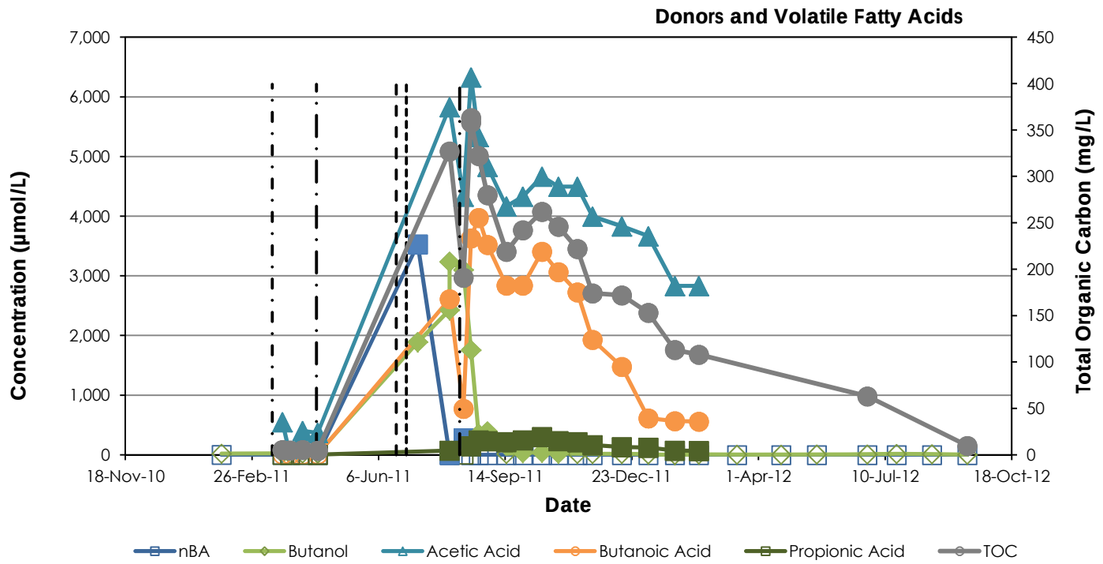
Longevity of electron donor supply was assessed using the same time-series groundwater concentration data collected for assessment of several of the other objectives, namely the concentrations of remaining nBA, donor breakdown products (including n-BUT from nBA), VFAs, and TOC. Sustained donor supply from a one-time addition of PED is desirable, as it requires reduced frequency of donor replenishment.

This objective was confirmed by the persistence of electron donor equivalents throughout the DEM/VAL operation (see Section 5.7.8.2). The concentrations of nBA, nBuOH, VFAs and TOC are presented in Table E-1-7 and plotted in time-series figures in Appendix E for each monitoring location. Figures 22a and 22b show the VOC and donor trends for RW0007 and RW0008. Donor concentrations observed at the central extraction wells, RW0007 and RW0008 in terms of the amount of carbon (i.e. mmol C/L) indicates the PED was a suitable electron donor and provided a sustained source of donor (refer to Tables E-5-5 and E-5-10 in Appendix E). Measured TOC concentrations were generally equal to the sum of the individually quantified components. For example, at RW0007 the TOC concentration was, on average, 91% of the sum of the VFAs plus other carbon-containing compounds (nBA, nBuOH, VOCs and DHGs) and at RW0008, the TOC concentration was 99% of the sum of the VFAs and other measured carbon-containing compounds. TOC alone was monitored in the follow-on IM phase of operation, as it gave sufficient means to monitor the donor availability within the DEM/VAL plots.

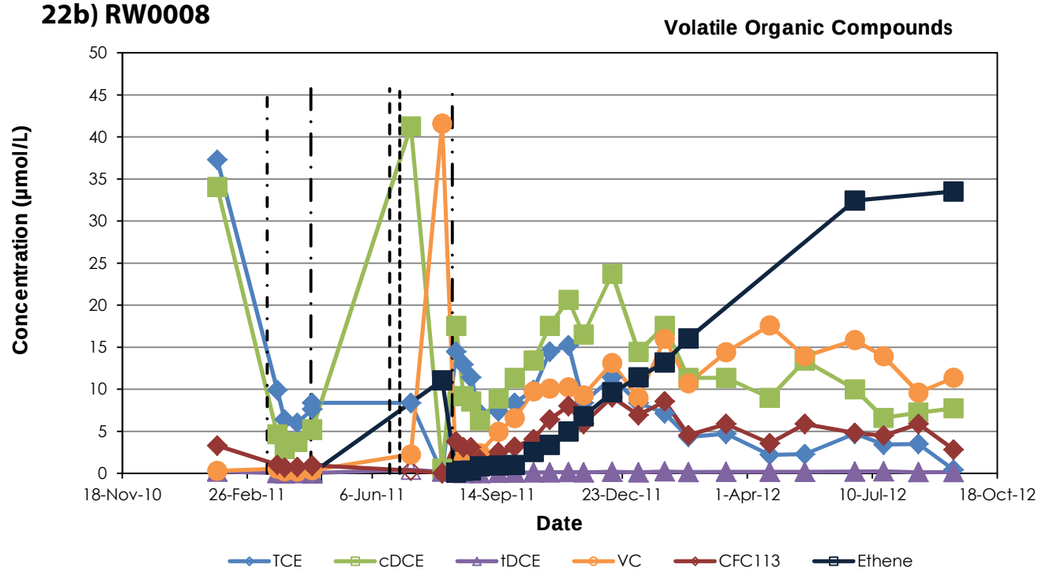
The total TOC added to the system was 238 kg (from 384 kg of nBA). This equates to 119 kg to the upper zone, 37.5 kg to the silty clay zone and 83.3 kg to the lower zone. Figure E-4-3 in Appendix E shows the cumulative mass of TOC extracted from RW0007 and RW0008, respectively. These results were estimated by summing the product of the average TOC concentration and the volume of groundwater extracted between sampling events. The analysis was extended beyond the DEM/VAL, although TOC concentrations were only measured on two occasions, in weeks 47 and 58. Considering the results together, the cumulative mass of TOC

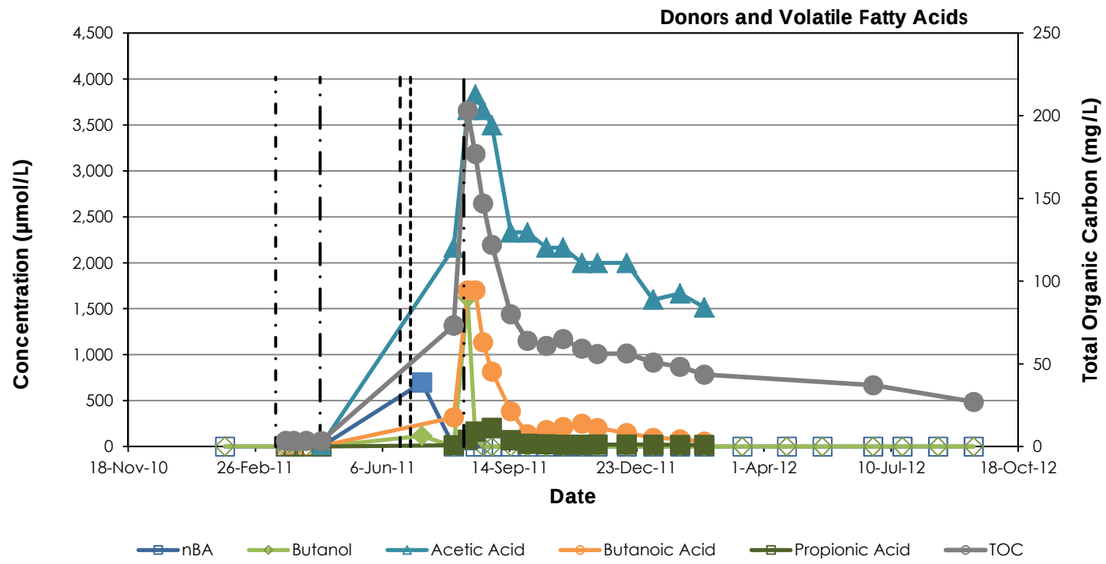
22a) RW0007





22b) RW0008





Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the

Start Baseline Recirculation
End Baseline Recirculation
Start nBA Injection
End nBA Injection
Start Main Recirculation

VOC, Donor and VFA Time Trends
RW0007 & RW0008
Launch Complex 34, Cape Canaveral, FL

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Figure **22**

P:\PRJ\Projects\180272 - ESTCP PED\04 ESTCP Reporting\21 Final technical Report\03 FIGURES\[Figure 22a&b.xlsx]Fig 22a_b

extracted was greater than the total mass of carbon in the nBA injected, which is an expected consequence of the recirculation of groundwater. When considering each separately, the mass of TOC extracted from the upper and lower zones exceeded the mass of nBA (as TOC) delivered to each zone respectively. This implies biomass grown in place may be enhancing the TOC.

6.4 PED PARTITIONS INTO THE DNAPL (QUALITATIVE)

The partitioning of PED into DNAPL was evaluated using groundwater analyses for conservative tracers (bromide and iodide), nBA and nBuOH, and TOC following PED injection. In the TDP (Lebrón and Major, 2011), it was suggested that nBA and VOC concentrations in soil would be analysed as well, but this was deemed impractical, as it would not be possible to determine whether the nBA and VOCs were in a NAPL phase or not. Because baseline soil data for VOCs showed considerable spatial variability and the presence of DNAPL was not confirmed, it was considered infeasible to attempt to quantify nBA within TCE-NAPL through soil sampling.

This performance objective was met. Although data collected in the field DEM/VAL did not have sufficient resolution to demonstrate PED partitioning into DNAPL the partitioning phenomenon was clearly demonstrated in the laboratory column experiments (Cápiro et al., 2011 and the laboratory summary report). The major reason for the apparent difference in behavior, between laboratory and field, is the amount of NAPL present in each case. As discussed in the TDP, the change in the aqueous concentrations of nBA should be proportional to the mass of residual NAPL present. In the laboratory column tests, the emplaced NAPL zone occupied 10-15% of the pore space. At this relatively high saturation, the NAPL phase can sequester a significant amount of nBA, resulting in a relatively large decrease in the aqueous phase concentration of nBA that can be readily detected. In contrast, the DEM/VAL field plots had low residual NAPL saturation (in fact, the degree of saturation could not be determined), such that only a relatively small amount of nBA would need to partition from the aqueous phase to establish equilibrium between the aqueous phase and any NAPL phase droplets. If only a small amount of nBA was sequestered from the aqueous phase, the resulting decrease in the concentration of nBA would be small and difficult to discern in the field data.

In the field, combined recovery of nBA and nBuOH shortly after PED injection (data collected 07-Jul-11 from 10 monitoring locations) was, on average, 93% of the bromide tracer recovery, suggesting some partitioning and/or sorption. Also, any additional breakdown products from the nBA were not accounted for, since TOC measurements were not collected at this time. Furthermore, there was considerable variation in relative recovery between monitoring locations, such that the standard deviation was 47%. Because of this, there is little confidence in the interpretation of the observed difference in terms of partitioned nBA. Later data is difficult to assess in this manner due to breakdown of the nBA, although the recovery of TOC relative to tracer gives some idea.

The 93% relative recovery is perhaps higher than might be expected once sorption of nBA to organic carbon in the aquifer is taken into account. Using the fraction of organic carbon determined on soils samples (Appendix E), a retardation factor of 1.4 was estimated for the upper sweep zone, suggesting that at equilibrium approximately 30% of the nBA might be expected to be sorbed to the matrix. When the aqueous nBA concentrations are scaled by a factor of 1.4 (with no scaling of the nBuOH since it is not expected to sorb strongly), the relative recovery of nBA and nBuOH is estimated to be 1.16 (±0.57).

6.5 PED Partitions out of the DNAPL at a Suitable Rate and Concentration (Qualitative)

The applied PED, once partitioned into residual DNAPL phases and onto sorption sites, must be released to groundwater at a rate and concentration that is sufficient to support bioremediation. The success of the technology relies on creating a sustained donor supply that matches the release of contaminants. The PED partitioning rate will be considered suitable if it occurs over the timeframe of the period of evaluation.

Assuming that PED partitioning into DNAPL is successful, the expectation is that PED will be released back to groundwater when dissolved-phase PED concentrations decrease as the un-amended groundwater is pulled into the treatment area due to removal from the central extraction wells. The intent is that this will sustain concentrations of nBA and/or its breakdown products that are greater than would persist in a soluble donor system after a pore volume of water has been extracted. In a soluble donor system, the donor will be removed with groundwater. In the PED system, donor is re-supplied from the DNAPL phase (and sorptive sites).

Assessment of this objective required use of nBA concentrations in groundwater over time, nBuOH concentrations, VFA and TOC concentrations, and VOC concentrations in groundwater. The assessment was not straightforward, as the nBA was actively consumed as it migrated toward the extraction well; however, evidence of sustained donor supply provided by the presence of dechlorination products should also support the evaluation. Changes in the amount of DNAPL dissolution were assessed by comparing the total flux of VOCs observed at the central extraction wells before and after application of the PED.

This performance objective was considered met. Sustained concentrations of electron donor (TOC and VFAs) were observed, with production of dechlorination products. Microbial numbers also increased. For the upper zone, the presence of elevated concentration of CFC-113 (which can inhibit dechlorination) and high initial concentrations of cDCE would mask the increase we wanted to observe. In the lower zone a sustained increase in total VOC mass flux was observed. Both upper and lower zones had near complete removal of TCE, only one location (BW0001D) had TCE remaining at the end of the DEM/VAL.

6.6 ABILITY TO DELIVER PED INTO THE SOURCE AREAS (QUANTITATIVE)

One objective of the PED DEM/VAL was to demonstrate that the PED can be readily delivered to the source area. In order to be an effective bioremediation approach, the application of PED should have been reasonably comparable to that of other traditional electron donors, so that its other properties can provide an overall benefit. The ability to deliver the design quantity of PED into the source area was expected to be comparable to that of other electron donors.

The objective was to be considered met if the design quantity of PED-amended fluid was delivered to the target zones within a reasonable amount of time (hours), using reasonable injection pressures. The success criterion was to amend at least 75% of the target volume (33,600 gal). This performance objective was met. The injection program successfully delivered the target volume and concentration of PED-amended fluid to the target zones: 34,000 gal of injectate containing 3,000 mg/L nBA with bromide and/or iodide as tracers was injected.

An additional consideration for this objective was that the post-injection concentrations of nBA, in soil and groundwater, would be well distributed following amendment. This objective was also met.

The ability to deliver the design quantities of PED to the target zones of the source area was assessed during installation, through observation of field implementation and monitoring of injection pressures and flow rates. Following amendment injection, the achieved distribution of PED was assessed through post-injection sampling of groundwater for tracers and nBA.

6.7 INCREASED DNAPL DISSOLUTION (QUANTITATIVE)

The PED technology is designed to provide electron donor at the NAPL:water interface to promote growth of dechlorinating biomass as close to the source of dissolved-phase VOCs as possible. By promoting and supporting reductive dechlorination close to the NAPL:water interface, the PED creates a steep concentration gradient between the NAPL and the aqueous phases, which results in increased DNAPL dissolution.

The amount of DNAPL dissolution was assessed by comparing the mass discharge of VOCs before and after application of the donor. Mass discharge is an integrated estimate of the mass flux, representing the total mass of any solute conveyed by groundwater through a plane, in this case a cylindrical surface around the extraction well. One advantage of this method is that the extraction well effectively integrates flow and concentration so that even small concentration hot spots and high-transmissivity zones are captured by the well and included in the estimate (ITRC, 2010). Typically this approach requires that the pumping well not increase the flow through the source zone, which might increase the dissolution rate (concentrations may or may not change), pumping be continued long enough that relatively steady-state conditions are achieved, and capture of the high-discharge portions of the plume must be complete or near-complete (ITRC, 2010).

The mass discharge was calculated from the groundwater VOC concentration data and the pumping rate and volume data. The total amount of TCE equivalents was calculated as the sum of TCE and its breakdown products, on a molar basis. The product of these measured concentrations and the volumetric pumping rate yielded an estimate of the total mass discharge rate. Using the pumped volumes, estimates of cumulative total mass discharge over time were determined. Changes in the total amount of TCE equivalents over time indicated changes in the rate of DNAPL dissolution. Interpretation was complicated by the fact that extracted groundwater was re-injected in the peripheral ring of injection wells without removing VOCs (or donor); dissolved species in groundwater removed from the extraction wells were re-introduced to the aquifer at the perimeter of the sweep zones. Estimates of the relative amount of recycle were obtained from comparison of the pumped volumes to estimates of the sweep zone pore volume, the tracer data and the TOC data.

It was expected that the PED plot would have increases in total VOC concentrations following amendment with nBA (relative to baseline). This increase in total VOC mass flux would be a primary indicator that the PED application worked as intended. The objective was to be considered met if the increase in total VOC mass flux observed in the PED plot was 50% or greater than that typically observed at sites where soluble donor was applied.

The result was partially confirmed. In the lower zone there was an increase in the total VOC mass flux to the extraction well. In the upper zone there was not an increase in total VOC mass flux to the extraction well. The lower zone enhancement factor was in the range for a typical donor application. DNAPL was not confirmed (i.e., observed) in the pilot test but the data collected indicate that there were additional TVOCs in the system.

Although the presence of DNAPL within the field plot was not confirmed the dissolved concentration data showed increases in the total amount of VOCs in some locations. Time trend plots of the VOCs at extraction wells RW0007 and RW0008 are presented in Figure 3. Appendix E contains time trend plots for the other monitoring well locations. The upper zone did not experience an increase in total VOC mass discharge at the extraction well, even though there was a definite shift towards lesser-chlorinated degradation products, as illustrated by the extent of dechlorination calculation shown in Figure 4. A number of factors may have contributed to this, including:

- Sustained elevated concentrations of cDCE;
- Sustained elevated concentrations of CFC113; and
- Distribution of TCE (and CFC113) – most of the mass was found at BW0001 upon installation and RW0007, suggesting there may have been DNAPL in that portion of the demonstration area, but not uniformly around the extraction well, so that the pumped groundwater represents a blend of water that passed through a source zone where contact with residual DNAPL was possible, and other water that came

from/through other portions of the demonstration area(s) where there was little TCE NAPL to contact.

The lower zone did experience an increase in total VOC mass discharge at the extraction well. The concentration trend is presented in Figure 20b. This figure shows that the increasing total VOC mass in extracted groundwater was due to increasing amounts of TCE degradation products.

The lower zone enhancement factor was in or above the range for a typical donor application. Data from RW0008 showed that, during the first three months, the ratio of TVOCs to the concentrations observed during the baseline recirculation phase was on average 2.4 times greater. The TVOC ratio increased to an average of 4.1 times over the next four months (i.e., months 4 through 7). Data collection during the subsequent Interim Measure Recirculation Phase was not as frequent, but at months 10 and 13, the TVOC ratio was 5.3 and 4.4, respectively.

6.8 IMPROVED EFFICIENCY OF ELECTRON DONOR UTILIZATION (QUANTITATIVE)

Because the PED will partition into residual DNAPL, and partition back into groundwater along with VOCs as they dissolve from the NAPL-phase, the electron donor may be preferentially utilized by dechlorinating bacteria. Hence, a greater proportion of the amended PED was expected to be used to support reductive dechlorination of VOCs rather than untargeted reactions (e.g., methane production).

The efficiency of electron donor utilization was assessed using the groundwater concentrations of VOCs, electron donors, breakdown products, and dissolved hydrocarbon gases (DHGs) over time. The parent donor compound, nBA, along with its breakdown products (n-butanol, acetate, and other VFAs), were monitored, in addition to the VOCs and their breakdown products, plus other compounds that may have formed, such as methane, so that a detailed understanding of the donor consumption pathways was ascertained.

The objective would be considered met if the ‘utilization ratio’ is greater for PED than is typically observed with traditional soluble donors. The success criterion will be an observed increase in utilization ratio of 50% or greater relative to the soluble donor system of the prior LC34 study (Battelle, 2004; Hood et al., 2008). That is, the units of TCE dechlorinated to units of ethanol applied for soluble donors will be compared to the units of TCE dechlorinated in the PED plot to units of PED applied).

The PED lasted longer than a soluble donor, several pore volume flushes were completed and if the donor was soluble it would have been extracted from the system. However, determining that the PED was more than 50% better than a soluble donor was not quantitatively determined. In the upper sweep zone significant cDCE was present at the start of the DEM/VAL and so production of cDCE from PED addition was not simply calculating the cDCE increase. This was not the case for the LC34 study. There were also elevated concentrations of CFC113 in many of

the collected groundwater samples which can inhibit dechlorination which would also limit confirmation of the objective. Nevertheless, the PED can be considered similar to other long term electron donors (e.g., emulsified vegetable oils) over the benefits of soluble donors (e.g., lactate or ethanol).

6.9 REDUCTION IN DNAPL MASS IN THE SOURCE AREA (QUANTITATIVE)

One goal of source zone bioremediation is to reduce the amount of DNAPL remaining in the source area, to reduce the expected time for clean-up. Reduced source mass may also result in reduced VOC loading to the downgradient plume.

Assessment of this objective was based on the baseline and final VOC concentrations in soil and groundwater. If the PED is able to partition effectively into residual DNAPL and this promotes bioactivity then a decrease in soil VOC concentrations should occur. This may increase groundwater VOC concentrations (in part due to production of daughter products).

The objective was confirmed based on the interpolated TVOC mass in the treatment zone. Figure 21 presents the interpolated TVOC mass accounting for sorption; there is a significant decline in TVOC mass, estimated to be a 77% reduction (Attachment E-6 in Appendix E). The sparse data set of soil samples, targeting specific locations, suggest there are some changes in TVOC but changes may not be sufficient to discern changes in TVOC mass across the entire treatment area.

6.10 REDUCE OPERATION AND MAINTENANCE COSTS (QUANTITATIVE)

A major feature of the PED technology is the reduced frequency of donor replenishment, the commensurate reduction in application costs, and the shorter remedial timeframes, resulting in lower operation and maintenance (O&M) costs, anticipated due to increased rates of DNAPL dissolution. The success of the PED technology depends on the degree to which these reductions in the number of applications and in the cost of operation and maintenance can be realized.

The reduction in operation and maintenance costs was estimated on the basis of the data collected during the DEM/VAL, including the costs for materials, labor and analytical costs. The time of operation relative to operation with a soluble donor was extrapolated using apparent DNAPL dissolution rates to estimate remedial timeframe. The observed longevity was used to estimate the frequency of re-amendment, to estimate costs over the lifetime of the remedy.

This performance objective was generally confirmed. The PED remained longer in the groundwater compared to a simple soluble donor (e.g., lactate) and promoted dechlorination. After 8 months of recirculation there was still enough residual organic carbon to promote bioactivitiy. On this basis we can conclude that the donor lasted longer than estimated, with no significant biofouling issues and hence less frequent donor addition and maintenance with the

PED over a soluble donor. Given this it would be likely that the PED will provide a shorter remedial timeframe but it is not exactly known if this will be a cost savings of 25% or more. However, the exact 25% reduction cannot be quantified, per se. At the end of the DEM/VAL VOC mass remained in parts of the test area and the time to completely treat remaining VOCs was not known.

7 COST ASSESSMENT

To assess and validate the expected costs of the PED technology, detailed cost information was tracked during the demonstration. This provides a cost summary for implementation of the technology and for comparing it to potential alternative technologies. An effort was made to identify and track cost elements unique to the PED technology so that the cost benefits of the PED technology could be assessed and realistic cost estimates could be made for implementation at a given site.

7.1 COST MODEL

The simplified cost model developed for the PED technology is presented in Table 5. The cost model reflects the elements that were incurred in the demonstration and that would be required to implement the technology for site remediation. In most cases, costs for the demonstration were greater than those anticipated for a typical application, due to extra efforts to collect sufficient data during the demonstration to validate the technology. Costs for implementing the technology at a selected site can be estimated using standard costs for the elements.

7.1.1 Cost Element: Laboratory Treatability Study

Although not absolutely required, a treatability bench scale evaluation would be conducted at most sites to determine the feasibility of implementing bioremediation at the site and to determine whether bioaugmentation was required. The cost listed in Table 5 represents the large-scope treatability testing conducted at Georgia Tech as a component of this DEM/VAL. This level of testing would not be necessary to assess a candidate site for implementation of the PED technology. Instead, a relatively straightforward evaluation of the applicability of bioremediation at a given site would be performed, costs for which should be included to properly compare the PED bioremediation technology to other source zone remediation technologies. Typical treatability study costs include the costs for collecting site soil and groundwater, setting up microcosms, and sampling and laboratory analysis.

7.1.2 Cost Element: Infrastructure Installation

The costs for infrastructure installation included the construction of the monitoring, injection and extraction wells plus the solar-powered groundwater recirculation system. These costs will be somewhat site-specific, as the numbers of wells and the costs to install them will depend on site characteristics (e.g., depth of wells, lithology, size of source area, etc.). A recirculation system, solar-powered or conventional, is not required, but proved useful for the DEM/VAL. In practice, the PED technology could be implemented in a range of scenarios from passive (i.e., no recirculation) to fully active (continuous recirculation, with or without routine PED addition).

TABLE 5. COST MODEL FOR APPLICATION OF PARTITIONING ELECTRON DONORS

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Cost Element	Data Tracked During the Demonstration	Estimated Costs		
Laboratory Treatability Study	· Costs for collection of Site soil and groundwater	Total	$	100,000
	· Costs for treatability study in lab			
	· Materials			
	· Labor costs			
	· Laboratory analytical costs			
Infrastructure Installation	· Drilling (subcontractor)	Labor	$	33,534
	· Equipment costs	Expenses (including subcontractors)	$	57,080
	· Labor costs			
Baseline Sampling	· Laboratory analytical costs	Labor	$	4,742
	· DPT sampling (subcontractor)	Laboratory Analytical	$	5,175
	· Labor costs	Expenses (including subcontractors)	$	806
Installation and Amendment	· Direct push injection costs (subcontractor)	Labor	$	21,095
	· Material costs - Electron donor & Tracer	Electron Donor	$	3,065
	· Labor cost	Tracers	$	2,007
		Laboratory Analytical	$	6,484
		Expenses (including subcontractors)	$	59,810
Waste Disposal	· Investigation derived waste disposal costs	Expenses		NA
Operation and Maintenance	· Cost of labor for standard O&M	Labor		NA
	· Additional materials or labor costs for troubleshooting etc.	Expenses		NA
Performance Sampling	· Labor costs	Labor	$	50,713
	· Direct push soil sampling costs (subcontractor)	Laboratory Analytical	$	69,606
	· Laboratory Analytical Costs	Other Expenses	$	15,261
Regulatory/ Permitting	· UIC permit was obtained for NASA IMWP			
Total			**$**	**429,377**

7.1.3 Cost Element: Baseline Sampling

Baseline sampling costs included costs for collection and analysis of soil and groundwater samples. In practice these costs will be somewhat site specific since the number of samples and target analytes will vary. It should also be noted, that costs for baseline sampling would apply regardless of technology selected for a site's remedial approach.

7.1.4 Cost Element: Installation and Amendment

This element included costs for the materials (nBA and tracers), PED injection (injection contractor, oversight) and confirmation sampling (sample collection, analytical). These costs can be expected to vary between sites.

DPT injection was used to deliver the PED into the subsurface throughout each pilot test area. This method of amendment delivery involved the costs for an experienced injection subcontractor and for oversight labor during installation. This included costs for suitable equipment and safety gear to properly handle the nBA in its pure form (e.g., bonding, grounding). Other than that, there were no costs that were unique to the PED technology.

The overall cost for implementation of the PED technology will depend on the required number of re-applications. This is reflected in the cost analysis below.

7.1.5 Cost Element: Waste Disposal

This is a standard cost element; hence, it was not tracked during the DEM/VAL. Typical IDW disposal considerations will apply. In this case, NASA paid for disposal and the analytical costs for characterization were included with groundwater sample events.

7.1.6 Cost Element: Operation and Maintenance

No unique requirements were encountered. The costs for routine O&M during the DEM/VAL were not tracked separately, but are included in the Performance Sampling element (i.e., are included in Task 3 and Task 6 costs). Standard O&M costs can be used to estimate this element for full scale application of the technology.

7.1.7 Cost Element: Performance Sampling

Standard groundwater sampling and direct-push soil sample collection were used for monitoring the performance of the PED technology. The performance sampling costs were part of the demonstration assessment and were not typical for normal implementation of the PED technology. The costs for the detailed program were tracked and reported in Table 5, including labor, materials and laboratory analysis.

Some level of performance monitoring is required for any remedial technology. Since there are no unique sample collection or analytical requirements, the costs for a typical program can be estimated from standard monitoring costs for full scale application of the technology.

7.1.8 Cost Element: Regulatory / Permitting

The regulatory and permitting requirements are likely to vary from site to site, depending on the region and agency responsible for regulatory oversight. For the DEM/VAL, an underground injection control (UIC) permit was obtained by NASA for their IMWP. The PED, nBA, may have an MCL in groundwater as it does in Florida. Estimates of typical costs for preparation of permit requests and permit fees can be used to estimate the cost of this element for full scale application of the technology.

7.2 COST DRIVERS

The costs to implement the PED technology for DNAPL source zone treatment will vary from site to site, depending on the size of the site (i.e., impacted volume) and several site-specific characteristics. The key cost drivers are listed below along with a brief discussion of the impact on cost.

- Area to be treated – additional electron donor and direct push locations would be required
- Depth of source area
- Vertical thickness
- Naturally occurring groundwater quality – high concentrations of other electron receptors will increase the amount of donor required
- DNAPL Mass and Distribution

Also consider:

- Lithology & permeability – delivery in sands will be easier than in low permeability. Permeable (higher hydraulic conductivity) sites are likely to be better candidates for recirculation as a means of delivery and hydraulic control.

- Ambient groundwater velocity – site with higher velocity will have greater flushing of donor and potential influx of additional electron acceptors, both of which may affect PED utilization

7.3 COST ANALYSIS

A comparison is made between the PED technology and the most comparable in situ source zone treatment technology, conventional source zone bioremediation using non-partitioning electron donors. A cost analysis was conducted to calculate expected costs to treat a hypothetical site

with PED compared to using EVO, a widely accepted electron donor. The hypothetical site was assumed to have the following characteristics:

- Sand aquifer (30% porosity) that is 30 ft deep and underlain by a clay aquitard;
- DNAPL source zone is 40 ft wide by 80 ft long by 15 ft deep (15 to 30 ft bgs); and
- 500 kg of TCE DNAPL is present

Because PED is intended to be a source zone remedy, the cost comparison developed considers only treatment of the source zone and not the plume. For consistency, it is assumed that in both scenarios amendment of electron donor would occur via direct push injection at 40 injection points, each with a 5 ft radius of influence, evenly distributed across the source area. For both scenarios, the target injection volume is 50% of the source zone volume, which is considered a realistic value to sufficiently distribute the applied donor (PED or EVO). The assumptions for the cost analysis are summarized in Table 6. The mass of donor required, frequency of injection and total treatment time were varied in accordance with the known properties of each donor. Complete source zone treatment requires a substantial amount of time. The analysis compares the PED and EVO approaches for initial source zone treatment, after which the two scenarios converge since beyond the initial timeframe further remediation may still be required, but each scenario would likely need similar efforts to complete treatment.

Table 7 shows the total estimated treatment costs for the two scenarios – PED versus EVO. The calculated costs assume that the DNAPL and Site were previously well characterized. The total cost using PED as the electron donor was estimated to be $571,000, while the total cost using EVO was estimated to be $679,000. The differences in overall cost are attributable to the cost of donor applied in each event (which is a function of the unit cost and amount of donor required; the estimated number of applications is the same in both cases) and the duration of the remedy, which governs the number of monitoring events. Since other costs are likely to be similar between the two technologies, the cost savings with the PED technology arises primarily from the reduced duration of the remedy. The shorter duration is directly related to the enhanced DNAPL dissolution promoted by the PED.

The PED technology is applicable to the majority of sites with DNAPL source zones. Acceptance of the technology may significantly reduce remediation costs. The PED technology may also alleviate the drive to use other more aggressive and costly technologies to treat source zones, for example, thermal and chemical oxidation. Although the cost analysis presented here considered direct injection, groundwater recirculation systems could also be used. Existing pump and treat systems could benefit from introducing PED to create a small biological degradation/containment zone in and around the source area. This would eliminate or significantly reduce the amount of groundwater extraction (and associated costs) required to maintain containment while reducing the overall treatment time.

TABLE 6. ASSUMPTIONS MADE FOR THE BASIS OF THE COST ANALYSIS

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

	PED		EVO	
	Value	**Rationale**	**Value**	**Rationale**
Assumed TCE Mass (kg)	500	Assuming 0.1% NAPL would give a TCE mass of 310 kg; Using the soil concentration of 300 mg/kg (which is NASA's concentration indicative of NAPL) gives a TCE mass of 650. Based on these a mass of 500 kg was selected/assumed.	500	Assuming 0.1% NAPL would give a TCE mass of 310 kg; Using the soil concentration of 300 mg/kg (which is NASA's concentration indicative of NAPL) gives a TCE mass of 650. Based on these a mass of 500 kg was selected/assumed.
Stoichiometric Donor Demand (kg)	83	Based only on TCE mass	64	Based only on TCE mass
Source Zone Volume (ft^3)	48,000	Assumes source zone is 40 ft wide, 80 ft long, and 15 ft thick.	48,000	Assumes source zone is 40 ft wide, 80 ft long, and 15 ft thick.
Depth of Aquifer (ft bgs)	30	Assumption	30	Assumption
Source Zone Pore Volume (ft^3)	14,400	Assumes porosity is 30%.	14,400	Assumes porosity is 30%.
Source Zone Pore Volume (L)	407,808		407,808	
Target Injection Volume (L)	203,904	Targets 50% of the pore volume.	203,904	Targets 50% of the pore volume.
Target Concentration of Injectate	3 g/L	Keep below nBA solubility (same as DEM/VAL)	1%	Typical oil concentration (from EVO) for source areas.
Target Mass of Donor into Formation (kg)	620		1,880	
Resulting Saftey Factor	7	(Target Mass into Formation)/ (Stoichiometric Donor Demand)	29	(Target Mass into Formation)/ (Stoichiometric Donor Demand)
Injection Points	40	Direct push on 10 ft centers (assume 5 ft radius)	40	Direct push on 10 ft centers (assume 5 ft radius)
NAPL Dissolution Enhancement	1.5	PED vs. EVO	1	
Treatment Time (years)	6.7	Assumed treatment will be 50% faster than EVO due to dissolution enhancement	10	Assumed 10 years of treatment
Treatment Frequency	Four Applications	Applied more frequently than EVO (every 2 years) because less TOC mass is applied in each application	Four Applications	Every 2.5 years
Total Donor Mass to Inject (kg)	2,500		7,600	

Notes:

1. Treatment applications are fixed to four for each technology. Treatment time is variable.

TABLE 7. COST COMPARISON OF PED TECHNOLOGY TO EISB USING CONVENTIONAL DONOR (EVO)

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Cost Element	Unit	PED			EVO		
		Unit Cost	No.	Cost	Unit Cost	No.	Cost
Bench Scale Treatability Study	**LS**	**$ 20,000**	**1**	**$ 20,000**	**$ 20,000**	**1**	**$ 20,000**
Monitoring Well Installation	**LS**	**$ 20,000**	**1**	**$ 20,000**	**$ 20,000**	**1**	**$ 20,000**
Drilling Subcontractor	*well*	*$ 2,500*	*5*	*$ 12,500*	*$ 2,500*	*5*	*$ 12,500*
Well Development	*well*	*$ 500*	*5*	*$ 2,500*	*$ 500*	*5*	*$ 2,500*
Oversight	*hr*	*$ 100*	*50*	*$ 5,000*	*$ 100*	*50*	*$ 5,000*
Donor Application	**Event**	**$ 94,750**	**4**	**$ 379,000**	**$ 107,687**	**4**	**$ 430,748**
Donor	*kg*	*$ 7.50*	*620*	*$ 4,650*	*$ 4.30*	*4,090*	*$ 17,587*
Bioaugmentation Culture	*L*	*$ 255*	*20*	*$ 5,100*	*$ 255*	*20*	*$ 5,100*
DPT Subcontractor	*LS*	*$ 75,000*	*1*	*$ 75,000*	*$ 75,000*	*1*	*$ 75,000*
Oversight	*hr*	*$ 100*	*100*	*$ 10,000*	*$ 100*	*100*	*$ 10,000*
Groundwater Monitoring	**Event**	**$ 9,475**	**16**	***$ 151,600***	**$ 9,475**	**22**	***$ 208,450***
Analytical	*LS*	*$ 1,875*	*1*	*$ 1,875*	*$ 1,875*	*1*	*$ 1,875*
Sampling Equipment	*LS*	*$ 200*	*1*	*$ 200*	*$ 200*	*1*	*$ 200*
Sampling Labour	*hr*	*$ 100*	*24*	*$ 2,400*	*$ 100*	*24*	*$ 2,400*
Reporting	*LS*	*$ 5,000*	*1*	*$ 5,000*	*$ 5,000*	*1*	*$ 5,000*
Total				**$ 570,600**			**$ 679,198**

Notes:

1. Assuming basis parameters listed in Table 6.
2. Assumes semi-annual groundwater montitoring (for the assumed duration plus one year).

8 IMPLEMENTATION ISSUES

In the DEM/VAL it was confirmed that nBA can be a suitable option for source treatment. The nBA nBA was applied using conventional direct push equipment. No special equipment was required and injection used standard commercial off-the-shelf materials. It should be noted that the PED, n-butyl acetate, is a Class 1B flammable liquid. It is a colorless liquid that volatilizes to form dense vapors which have the potential to form an explosive mixture with air. Handling precautions such as bonding and grounding are required when working with the pure phase nBA. In addition, some plastics, such as those composed of polyvinyl chloride, are known to be attacked by nBA. Care must be taken to ensure that nBA is adequately dissolved if it is applied near PVC wells.

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APPENDIX A

POINTS OF CONTACT

TABLE A-1
LIST OF CONTACTS
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Point of Contact	Organization	Phone/Fax/E-mail	Role in Project
Dr. David Major	Geosyntec Consultants 130 Research Lane, Suite 2 Guelph, Ontario, N1G 5G3	(519) 515-0860 Fax (519) 822-3151 dmajor@geosyntec.com	Principal Investigator and Project Director
Michaye McMaster	Geosyntec Consultants 130 Research Lane, Suite 2 Guelph, Ontario, N1G 5G3	(519) 515-0862 Fax: (519) 822-3151 mmcmaster@geosyntec.com	Senior Technical Advisor
Cory Repta	Geosyntec Consultants 130 Research Lane, Suite 2 Guelph, Ontario, N1G 5G3	(519) 515-0869 Fax: (519) 822-3151 crepta@geosyntec.com	Project Manager
Dr. Kurt Pennell	Department of Civil and Environmental Engineering, Tufts University, 200 College Ave., Medford, MA 02155	(617) 627-3099 Fax (617) 627-3994 kurt.pennell@tufts.edu	Laboratory Technical Director
Dr. Natalie Cápiro	Department of Civil and Environmental Engineering, Tufts University, 200 College Ave., Medford, MA 02155	(617) 627-3099 Fax (617) 627-3994 natalie.capiro@tufts.edu	Laboratory Study Manager
Carmen Lebŕon	NAVFAC EXWC, ESC411 1100 23rd Avenue Port Hueneme, California 93043	(805) 982-1616 Fax: (805) 982-4304 carmen.lebron@navy.mil	NAVFAC EXWC Project Manager and Lead
Dr. Rebecca C. Daprato, P.E.	Geosyntec Consultants, 11490 Westheimer, Suite 150 Houston, TX 77077	(281) 810-5059 Fax (281) 920-4602 rdaprato@geosyntec.com	Field Study Leader
Jim Langenbach, P.E.	Geosyntec Consultants, 6770 South Washington Ave, Suite 3, Titusville, FL 32780	(321) 747-1906 Fax (321) 269-5813 jlangenbach@geosyntec.com	Senior Technical Advisor
Mike Deliz, P.G.	National Aeronautics and Space Administration, Mail Code TA-B1B, Bldg. M6-399, Rm 1641, John F. Kennedy Space Center, FL 32899	(321)867-6971 Fax (321) 867-4446 michael.j.deliz@nasa.gov	NASA Project Manager

APPENDIX B

SYSTEM INSTALLATION AND BASELINE CHARACTERIZATION

APPENDIX B

SYSTEM INSTALLATION AND BASELINE CHARACTERIZATION

B.1 SYSTEM INSTALLATION

The DEM/VAL was conducted in two sweep zones, one above and one below the clay horizon. For each sweep zone, a groundwater recirculation system consisting of a central extraction well and five peripheral injection (recharge) wells was constructed to move groundwater through the PED-amended zone and maintain hydraulic control within the DEM/VAL area (Figure 13 of the main document). The recirculation systems utilized solar-powered submersible pumps. The system components were housed in a mobile trailer, with the solar panels mounted to the roof. To supplement the existing monitoring wells, three multilevel monitoring well bundles were installed within the demonstration area at varying distances from the central extraction location. A schematic cross section of the DEM/VAL plot is provided in Figure 10 (see main document), showing the locations of the well screens relative to the site lithology and the MIP data from the IW0076 location. Figure 14 (see main document) shows the process flow diagram for the groundwater recirculation system.

B.1.1 WELL CONSTRUCTION

Borehole drilling and well installation was performed by a State-licensed driller, Environmental Drilling Services, Inc. (EDS), under the direction of a Geosyntec field geologist. The field geologist maintained a complete record of the design and construction of each well and of all materials installed in the borehole (i.e., length of screen and casing, volume of sand and bentonite pellets, bags of cement, etc.). A total of 30 wells (two central extraction wells, ten paired recharge wells and three multilevel bundle monitoring wells with six depth intervals each) were installed between 17 and 25 January 2011. Table B-1 summarizes the well construction details. Well construction logs are provided as Attachment B-1 to this appendix. The lithology was assessed at the four soil boring locations (see below).

B.1.1.1 Extraction Well Installation

The two extraction wells (RW0007 and RW0008) were installed using hollow stem auger (HSA) techniques on 19 to 21 January 2011. Extraction well RW0007 was screened above the silty clay layer (35 to 42 ft BLS) and extraction well RW0008 was screened below the clay layer (47 to 57 ft BLS). The extraction wells were constructed of 6-inch diameter schedule 40 polyvinylchloride (PVC) risers and factory-slotted screens (0.020-inch slot size), completed in 14-inch diameter boreholes. The annular space around the well screen was filled with 6/20 sand filter pack followed by a 5-ft (minimum) thick bentonite seal. After allowing the bentonite chips to hydrate, the remaining annular space was grouted to surface with cement grout. The extraction wells were completed with an 18-inch x 18-inch steel well vault and 3-ft x 3-ft x

4-inch thick concrete pad. Two stub-outs, one for electrical wiring (1-inch diameter) and one for system piping (2-inch diameter) were installed in the wall of the vault box prior to completion. Construction details for the extraction wells are presented on Figure B-1. The well construction logs are included in Attachment B-1.

B.1.1.2 Injection Well Installation

Five injection well pairs (IJ0013 to IJ0022) were installed using HSA techniques on 17 to 20 January 2011. Each injection well pair consists of one injection well screened above the clay layer (32 to 42 ft BLS) and one injection well screened below the clay layer (47 to 57 ft BLS), completed in the same 10-inch diameter borehole. Injection wells were constructed of 2-inch diameter schedule 40 PVC with 0.020-inch slotted screen. The annular space around the well screens was filled with a 6/20 sand filter pack, extending 1-ft (minimum) above the screen interval, followed by a 2-ft (minimum) bentonite seal. Once the lower well was in place with its filter pack and bentonite seal, the upper well was installed in the borehole with its filter pack and seal. After allowing the bentonite chips to hydrate, the remaining annular space was grouted to surface with cement grout. The injection well pairs were completed at surface with an 18-inch x 18-inch steel well vault and 3-ft x 3-ft x 4-inch thick pad. Construction details of the injection wells are presented on Figure B-2. The well construction logs are included in Attachment B-1.

B.1.1.3 Bundle Monitoring Well Installation

Three bundle monitoring wells (BW0001A-F, BW0002A-F, and BW0003A-F) were installed using DPT on 20 to 24 January 2011. Each bundle well includes six individual monitoring wells with the following screen intervals: 23 to 26, 30 to 33, 37 to 40, 44 to 47, 51 to 54, and 58 to 61 ft BLS. The wells were constructed of ¾-inch schedule 40 PVC and screens with pre-packed filter packs consisting of 0.010-inch slotted screens surrounded with 20/30 filter sand. For wells A, B and C, 2 ft of 30/45 silica sand was placed as a seal above the pre-packed filter and the remainder of the hole was grouted to surface. For well D, a 2 ft bentonite sleeve was placed above the pre-packed filter and the remainder of the hole was grouted to surface. For wells E and F, two bentonite sleeves (4 ft total length) were placed 2.5 ft and 10 ft, respectively, above the pre-packed filter followed by grout to surface. The positions of the bentonite sleeves on wells E and F were selected to ensure a competent seal within the confining unit located at approximately 44 to 48 ft BLS. Annular space in between the pre-packed filter and the bentonite seal was allowed to fill with collapsed native material. Each bundle monitoring well was completed with a 4-ft x 6-ft x 4-inch thick concrete pad that contained the six individual monitoring wells (A through F), each with a separate 8-inch diameter steel cover. Construction details for the bundle wells are presented on Figure B-3. The well construction logs are included in Attachment B-1.

B.1.2 WELL DEVELOPMENT

Following installation, the newly installed wells were developed using standard surging and purging methods. The extraction wells were pumped with a centrifugal pump at rates up to 7 gallons per minute (gpm), with periodic stops to allow the well to recharge, until the turbidity had decreased and stabilized. A volume of 85 to 100 gal was removed from each extraction well. The injection wells were developed using a submersible pump, at rates of 1 to 2 gpm, to remove 20 to 30 gal from each until the water produced was clear of sediment. The bundle monitoring wells were developed with a peristaltic pump at an average rate of 0.15 gpm, removing approximately 5 gal from each. Development was continued until field parameters including turbidity had stabilized. Well development data for the bundle wells is included in Appendix C (Attachment C-2 Field Forms).

B.1.3 GROUNDWATER RECIRCULATION SYSTEM

The groundwater recirculation system was installed in March 2011. It consisted of a mobile utility trailer that housed the system components and piping that carried the flow of groundwater from the extraction wells to the trailer and then to the injection wells. Parallel independent groundwater recirculation systems were operated for each of the upper and lower sweep zones.

B.1.3.1 Solar Powered Recirculation System

The groundwater recirculation systems operated using solar power. For each sweep zone, groundwater is pumped from the central extraction well and delivered to the five perimeter injection wells. Groundwater was pumped from each extraction well using a 4.25-inch diameter submersible pump (Robison BL40Q). Each pump was powered by two 12 volt (V) deep-cycle marine batteries that are charged by two 85 Watt (W) solar panels (27-inch by 42-inch) mounted to the top of the 5-ft by 8-ft mobile utility trailer that houses all the recirculation system components. Other components housed in the trailer include charge controllers, timers, hour meters, sediment filters, sample ports, flow totalizers, a piping manifold, and individual flow meters for the ten injection wells. A process and instrumentation diagram (P&ID) is presented on Figure 14 (see main document).

When powered, the pumps provided a flow rate of approximately 2.5 gpm. Each pump circuit included a timer that was set to operate the system for 40 minutes of each hour. This timing cycle extended the effective time that the systems were active, in effect distributing the downtime throughout the day. This approach was selected because the solar panels could not always collect sufficient energy to fully recharge the batteries, resulting in periods of no pumping. The systems often experienced periods of complete shutdown overnight, depending on the weather. Occasionally a recirculation loop would be down for a longer period due to actual pump failures.

B.1.3.2 Recirculation System Piping

The recirculation piping system was constructed using 0.75-inch diameter polyethylene (PE) tubing. The lines were run above-ground, enclosed in 2-inch diameter schedule 40 PVC for secondary containment. The upper and lower sweep zones had independent recirculation systems, with no mixing of fluid from one zone to the other. The PE tubing was connected directly to the submersible pumps and exited the extraction vault boxes through the stub-out to run from the extraction well to the system trailer. Within the trailer, extracted groundwater passed through a filter assembly (20 micron), a totalizing flowmeter, and a flow-controlling globe valve before entering a distribution header. Each extraction line was equipped with a sample port to facilitate sample collection. Each of the two headers consisted of five parallel discharge lines, each equipped with a flow-control valve and rotameter allowing flow to be divided and balanced between the five injection wells in each sweep zone. The ten individual lines to the injection well pairs were similarly run within PVC for secondary containment, entering the injection vault boxes through the stub-out. Each injection line was extended into the injection well to act as a drop tube, so that returning groundwater was released approximately 2 feet below the static groundwater elevation.

B.1.3.3 Pressure Transducers

Submersible pressure transducers and data loggers (Solinst Leveloggers™) were deployed in the extraction wells (RW0007 and RW0008), six injection wells (IJ0013, IJ0014, IJ0017, IJ0018, IJ0019, and IJ0020) and two monitoring wells (IW0002D and IW0002D1) to measure and record water level fluctuations during system operation. The data loggers were programmed to record pressure readings every 15 minutes. The data loggers were deployed part way through the Baseline Flux Assessment phase, on 23 March 2011. After the Baseline Flux phase, the loggers were removed for PED Injection and re-deployed in eight locations (IJ0013, IJ0014, IJ0017, IJ0018, IW0002D, IW0002D1, RW0007 and RW0008) prior to initiation of the Main Recirculation Phase. The data was periodically downloaded during system maintenance visits. All data loggers were removed, except from the two extraction wells, on 05 April 2012 (week 35, except for the logger in IJ0013, which stopped at week 26). The data loggers in both extraction wells remained operational until the recirculation system was shut down on 11 September 2012.

B.1.3.4 Granular Activated Carbon

During the initial groundwater recirculation phase to establish baseline concentrations and mass flux (Task 3), extracted groundwater was treated with granular activated carbon (GAC) prior to re-injection. The GAC vessels were plumbed into the system so that extracted groundwater was treated before it entered the trailer and the flow was divided (Figure 14; see main document).

B.2 BASELINE CHARACTERIZATION

Baseline characterization involved collection of soil and groundwater samples within the test plot. Soil samples were collected during well installation activities. Groundwater sampling included an initial synoptic event (Task 2) to characterize VOC distributions within the test plot following well construction, and subsequent routine sampling of the extraction wells and selected monitoring locations during groundwater recirculation to establish the baseline flux of VOCs (Task 3). Task 3 included a synoptic event to determine the VOC distribution at the end of the Baseline Flux Assessment Phase. These activities are further described below.

Sampling activities, including field measurements, sample collection, decontamination, and documentation were performed in accordance with FDEP Standard Operating Procedures (SOPs) for Field Activities (DEP-SOP-001/01) dated March 31, 2008 (effective December 3, 2008) (FDEP, 2008) and the NASA Sampling and Analysis Plan (NASA, 2006).

B.2.1 SOIL SAMPLING

Prior to well installation, four soil cores (SB1001 through SB1004) were collected using direct push technology (DPT) techniques at locations corresponding to bundle wells BW0001, BW0002, and BW0003 and using hollow-stem auger with split spoons at extraction well RW0008 on 19 January 2011. The locations are shown in Figure 13 (see main report). At each soil boring location, to a depth of approximately 60 ft BLS, continuous-core soil samples were collected, examined and logged to confirm the local distribution of lithologic units and the depth and thickness of the silty clay horizon. Boring logs are provided with the field forms in Appendix C (Attachment C-2). The cores were screened in the field using a hand-held photoionization detector (PID) to assess where samples might be expected to contain high concentrations of VOCs and/or residual DNAPL. Nineteen subsamples (four to six samples from each location) were selected for laboratory analysis in the mobile lab (KB Labs) by EPA method 5035/8260. In addition, eight samples were collected for laboratory determination of the fraction of organic carbon (f_{oc}) and four samples for grain size distribution. Samples were also collected and archived for potential microbial characterization (*Dehalococcoides* [*Dhc*] and/or vinyl chloride reductase [*vcr*A] assay), although these samples were not analysed.

Results from the sampling event are compiled and presented in Table E-1-1 in Attachment E-1 in Appendix E. Laboratory results from this sampling event are provided in Appendix G.

Soil investigation derived waste (IDW) was contained in properly labeled 55-gallon drums which were stored on NASA provided spill pallets.

B.2.2 HYDRAULIC TESTING

Following well installation and development, on 15 February 2011, hydraulic testing of the extraction wells and four recharge wells was performed using a pneumatic slug test technique,

which used air pressure to disturb the static water level in the well while measuring and recording the response with a pressure transducer. The time-recovery data was then analyzed to assess the transmissivity of the formation at that well. The data was analyzed to obtain estimates of the hydraulic conductivity using the Hvorslev Method. Calculation sheets for these estimates are included in Attachment B-2.

B.2.3 GROUNDWATER SAMPLING

B.2.3.1 Initial Baseline

Baseline groundwater sampling was conducted to confirm VOC delineation and to establish pre-DEM/VAL conditions within, and in the vicinity of the Hot Spot 1 treatment zone. Baseline characterization comprised a synoptic survey (Task 2) of initial VOC concentrations following installation and development of the new wells in the test plots, followed by an assessment of VOC concentrations and distribution during groundwater extraction and recirculation (Task 3), including a second synoptic survey at the end of this baseline recirculation.

Two pre-exiting monitoring wells within Hot Spot 1 are screened above and below the target treatment zone; however, the upper monitoring well (IW0002S) could not be located and was believed to have been destroyed. Additional far-field perimeter monitoring well pairs are arranged in a triangular pattern around Hot Spot 1, located at distances of 160 ft to 240 ft from the center of the area (refer to Figure 13). These outlying monitoring well clusters provided monitoring locations to document that the PED DEM/VAL did not have a negative effect on surrounding groundwater conditions; these locations were included in the sampling program to demonstrate Underground Injection Control (UIC) permit compliance. The Groundwater Cleanup Target Level (GCTL) for n-butyl acetate is 43 µg/L.

The baseline synoptic survey of initial VOC concentrations (Task 2), conducted on 1 to 3 February 2011, included the collection of groundwater samples for field parameters, including depth to water, and VOCs from a total of 34 locations (refer to Table 2) comprising all bundle monitoring wells (BW0001A-F, BW0002A-F and BW0003A-F), four existing site monitoring wells (IW0002I, IW0002D, IW0002D1 and IW0076), four of the ten injection wells (IJ0015, IJ0016, IJ0019 and IJ0020), the two extraction wells (RW0007 and RW0008), and the six perimeter monitoring wells (IW0067D, IW0067D1, IW0070D, IW0070D1, IW0071D and IW0071D1). The sample collection table for the event is included in Appendix D and the samples collected are summarized in Table 2 of the main document.

Results from this Initial Baseline sampling event are compiled and presented in Tables E-1-5 (VOCs) and E-1-9 (Field Geochemical Parameters) in Attachment E-1 in Appendix E. The VOC data is included in Figures 3 and 4 for the extraction wells and the corresponding figures in Appendix E for other monitoring locations. The results were incorporated into the interpolated TCE distribution presented in Figure 16 (main document). The laboratory reports from this sampling event are provided in Appendix G.

B.2.3.2 Baseline Flux Assessment

Further characterization of baseline groundwater conditions was conducted during the Baseline Flux Assessment Phase (Task 3). This involved continuous groundwater extraction for a period of about 4 weeks, with routine weekly sampling of the extraction wells (RW0007 and RW0008) and select monitoring wells (BW0001C, BW0002C, BW0003C, IW0002I, and IW0002D in the upper zone; and BW0001E, BW0003E, and IW000D1 in the lower zone) to establish the baseline VOC profile and flux under pumping conditions in both the upper and lower sweep zones of the test plot. The Baseline Flux Assessment was conducted from 14 March 2011 through 18 April 2011. Groundwater samples were collected weekly for analysis for VOCs, nBA, and nBuOH. The samples from the extraction wells were also analyzed weekly for VFAs, tracers (bromide and iodide) and TOC, and biweekly for sulfide, DHGs, anions and alkalinity. The sampling program is provided in Appendix D. Details about the operation of the recirculation system during the Baseline Flux Assessment are provided in Appendix C.

At the end of this baseline flux assessment phase, a comprehensive synoptic groundwater sampling event was conducted. During this sampling event, the extraction wells, bundle monitoring wells and existing site monitoring wells (including the far-field monitoring wells surrounding the treatment area) were sampled (30 locations total) and analyzed for the following parameters (as listed in Table 2):

- Field parameters (DO, ORP, pH, specific conductivity, temperature, turbidity);
- VOCs (including nBA, nBuOH, TCE and related breakdown products);
- VFAs (including formate, acetate, lactate, propionate and butyrate);
- Tracers (bromide and iodide);
- TOC;
- DHGs (including methane, ethane, ethene);
- Anions (chloride, nitrate, nitrite, sulfate);
- Dissolved metals (iron, manganese and arsenic);
- Sulfide;
- Alkalinity; and
- Microbial characterization (*Dhc* and/or *vcr*A).

Details of the sampling program are provided in Appendix D and the samples collected are summarized in Table 2 of the main document.

Results from the Baseline Flux Assessment Phase sampling events are compiled and presented in Tables E-1-5 (VOCs), E-1-6 (DHGs, Anions and Tracers), E-1-7 (TOC, VFAs and nBA), E-1-8 (Dissolved Metals), E-1-9 (Field Geochemical Parameters) and E-1-10 (*Dhc* and *vcr*A) in

Attachment E-1 in Appendix E. The VOC data is plotted in Figures 1, 3, 4, and 20 and in the corresponding time-trend and VOC distribution plots included in Appendix E. The laboratory reports from these sampling events are provided in Appendix G.

B.2.3.2.1 GAC Treatment

During the Baseline Flux Assessment phase, extracted groundwater was treated with granular activated carbon (GAC) to remove VOCs so that no VOCs were re-injected on the perimeter of the test plots. Samples of the GAC effluent were collected periodically (weeks 2, 3 and 4), from sampling ports located inside the system trailer, to confirm the efficacy of treatment. The samples were analyzed for VOCs by EPA Method 8260C. The results, which are presented in Table B-2, confirmed that the GAC removed the VOCs.

B.2.4 INVESTIGATION-DERIVED WASTE (IDW)

Investigation-derived waste (IDW) collected during the installation activities consisted of soils and liquids generated during drilling/coring, well purging and equipment cleaning. All IDW was characterized and disposed of in accordance with NASA standard site protocols.

Soil IDW was collected in a 20-yard roll-off bin. A composite soil sample was then collected and analyzed for VOCs (EPA Method 8260C) and metals (EPA Method 6010C and 7471B), as well as leachable VOCs using the toxicity characteristic leaching procedure (TCLP; EPA Method 1311). Soil IDW (12.65 tons) was transported to the Omni Waste of Osceola County Landfill by Florida Environmental Compliance Corporation (FECC) for disposal as non-hazardous waste. Laboratory analytical results are provided in Appendix G and the non-hazardous waste manifest is included in Attachment B-3 to this appendix.

Liquid IDW was collected in properly labeled 55-gallon drums and stored on NASA-provided spill pallets secured with cargo straps. A liquid sample was collected from each drum and submitted for analysis for VOCs (EPA Method 8260C), the laboratory results were provided to NASA, and drums were disposed of by NASA.

B.3 ATTACHMENTS

Table B-1	Well Construction Details
Table B-2	Summary of Effluent from Granular Activated Carbon Treatment
Figure B-1	Extraction Well Construction Details
Figure B-2	Injection Well Construction Details
Figure B-3	Bundle Monitoring Well Construction Details
Attachment B-1	Well Construction Logs
Attachment B-2	Hydraulic Conductivity Test Results
Attachment B-3	IDW Waste Manifest

TABLE B-1. WELL CONSTRUCTION DETAILS

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Coordinates		Borehole Diameter	Casing Diameter	Total Well Depth	Top of Screen	Bottom of Screen	Sand Pack Interval	Seal Interval	Grout Interval	Top of Casing Elevation	Surface Completion Type	Well Completion Date	Drilling Method	Well Type
	Easting (m)	Northing (m)	(inches)	(inches)	(ft BLS)	(ft BLS)	(ft BLS)	(ft BLS)	(ft BLS)	(ft BLS)	(ft BLS)				
LC34-BW0001A	242878.400	463707.029	2.25	0.75	26.00	23.00	26.00	23 to 26	21 to 23	0.6 to 23	NS	Flush	01/20/2011	DPT	BW
LC34-BW0001B	242878.400	463707.029	2.25	0.75	33.00	30.00	33.00	30 to 33	28 to 30	0.6 to 28	NS	Flush	01/20/2011	DPT	BW
LC34-BW0001C	242878.400	463707.029	2.25	0.75	40.00	37.00	40.00	37 to 40	35 to 37	0.6 to 35	NS	Flush	01/20/2011	DPT	BW
LC34-BW0001D	242878.400	463707.029	2.25	0.75	47.00	44.00	47.00	44 to 47	42 to 44	0.6 to 42	NS	Flush	01/20/2011	DPT	BW
LC34-BW0001E	242878.400	463707.029	2.25	0.75	54.00	51.00	54.00	51 to 54	44.5 to 48.5	0.6 to 44.5	NS	Flush	01/24/2011	DPT	BW
LC34-BW0001F	242878.400	463707.029	2.25	0.75	61.00	58.00	61.00	58 to 61	44 to 48	0.6 to 44	NS	Flush	01/20/2011	DPT	BW
LC34-BW0002A	242883.959	463705.969	2.25	0.75	26.00	23.00	26.00	23 to 26	21 to 23	0.6 to 21	NS	Flush	01/20/2011	DPT	BW
LC34-BW0002B	242883.959	463705.969	2.25	0.75	33.00	30.00	33.00	30 to 33	28 to 30	0.6 to 28	NS	Flush	01/21/2011	DPT	BW
LC34-BW0002C	242883.959	463705.969	2.25	0.75	40.00	37.00	40.00	37 to 40	35 to 37	0.6 to 35	NS	Flush	01/21/2011	DPT	BW
LC34-BW0002D	242883.959	463705.969	2.25	0.75	47.00	44.00	47.00	44 to 47	42 to 44	0.6 to 42	NS	Flush	01/21/2011	DPT	BW
LC34-BW0002E	242883.959	463705.969	2.25	0.75	54.00	51.00	54.00	51 to 54	44.5 to 48.5	0.6 to 44.5	NS	Flush	01/24/2011	DPT	BW
LC34-BW0002F	242883.959	463705.969	2.25	0.75	61.00	58.00	61.00	58 to 61	44 to 48	0.6 to 44	NS	Flush	01/21/2011	DPT	BW
LC34-BW0003A	242879.536	463703.464	2.25	0.75	26.00	23.00	26.00	23 to 26	21 to 23	0.6 to 21	NS	Flush	01/21/2011	DPT	BW
LC34-BW0003B	242879.536	463703.464	2.25	0.75	33.00	30.00	33.00	30 to 33	28 to 30	0.6 to 28	NS	Flush	01/24/2011	DPT	BW
LC34-BW0003C	242879.536	463703.464	2.25	0.75	40.00	37.00	40.00	37 to 40	35 to 37	0.6 to 35	NS	Flush	01/24/2011	DPT	BW
LC34-BW0003D	242879.536	463703.464	2.25	0.75	47.00	44.00	47.00	44 to 47	42 to 44	0.6 to 42	NS	Flush	01/21/2011	DPT	BW
LC34-BW0003E	242879.536	463703.464	2.25	0.75	54.00	51.00	54.00	51 to 54	44.5 to 48.5	0.6 to 44.5	NS	Flush	01/24/2011	DPT	BW
LC34-BW0003F	242879.536	463703.464	2.25	0.75	61.00	58.00	61.00	58 to 61	44 to 48	0.6 to 44	NS	Flush	01/21/2011	DPT	BW
LC34-IJ0013	242885.921	463715.105	10.00	2.00	42.15	32.25	41.75	31 to 42.15	27 to 31	1 to 27	NS	Flush	01/20/2011	HSA	INJ
LC34-IJ0014	242885.921	463715.105	10.00	2.00	57.15	47.25	56.75	46 to 57.15	43 to 46	1 to 43	NS	Flush	01/20/2011	HSA	INJ
LC34-IJ0015	242892.511	463701.804	10.00	2.00	42.15	32.25	41.75	31 to 42.15	27.5 to 31	1 to 27.5	NS	Flush	01/20/2011	HSA	INJ
LC34-IJ0016	242892.511	463701.804	10.00	2.00	57.15	47.25	56.75	45.5 to57.15	42.5 to 45.5	1 to 42.5	NS	Flush	01/20/2011	HSA	INJ
LC34-IJ0017	242881.402	463695.394	10.00	2.00	42.15	32.25	41.75	30.5 to 42.15	28.5 to 30.5	1 to 28.5	NS	Flush	01/18/2011	HSA	INJ
LC34-IJ0018	242881.402	463695.394	10.00	2.00	57.15	47.25	56.75	45.5 to 57.15	43.5 to 45.5	1 to 43.5	NS	Flush	01/18/2011	HSA	INJ
LC34-IJ0019	242868.942	463704.397	10.00	2.00	42.15	32.25	41.75	31 to 42.15	28.5 to 31	1 to 28.5	NS	Flush	01/18/2011	HSA	INJ
LC34-IJ0020	242868.942	463704.397	10.00	2.00	57.15	47.25	56.75	45.5 to 57.15	42 to 45.5	1 to 42	NS	Flush	01/18/2011	HSA	INJ
LC34-IJ0021	242871.529	463716.485	10.00	2.00	42.15	32.25	41.75	31 to 42.15	29 to 31	1 to 29	NS	Flush	01/18/2011	HSA	INJ
LC34-IJ0022	242871.529	463716.485	10.00	2.00	57.15	47.25	56.75	45 to 57.15	43 to 45	1 to 43	NS	Flush	01/17/2011	HSA	INJ
LC34-RW0007	242881.598	463704.927	14.00	6.00	42.00	35.25	41.85	35 to 42	30 to 35	1 to 30	NS	Flush	01/21/2011	HSA	RW
LC34-RW0008	242880.606	463704.376	14.00	6.00	57.50	47.50	57.00	47 to 57.5	39 to 47	1 to 39	NS	Flush	01/19/2011	HSA	RW
LC34-IW0002S‡	242879.515	463708.971	10.00	2.00	12.00	2.00	12.00	1.5 to 12	1.0 to 1.5	UND	NS	Flush	02/12/1998	HSA	MW
LC34-IW0002I	242880.683	463708.048	8.50	2.00	30.00	25.00	30.00	23 to 30	22 to 23	UND	NS	Flush	05/22/1997	HSA	MW
LC34-IW0002D	242882.024	463707.149	8.50	2.00	40.00	35.00	40.00	33 to 40	32 to 33	UND	NS	Flush	05/22/1997	HSA	MW
LC34-IW0002D1	242883.322	463706.231	8.50	2.00	55.00	50.00	55.00	48 to 55	47 to 48	UND	NS	Flush	05/22/1997	HSA	MW
LC34-IW0067D	242828.013	463736.855	2.125	0.75	43.00	38.00	43.00	38 to 43	NA	0.25 to 38	NS	Flush	05/16/2005	DPT	MW
LC34-IW0067D1	242827.358	463732.478	2.125	1.00	73.67	63.17	73.50	63.67 to 73.67	61.17 to 63.67	0.25 to 61.17	NS	Flush	11/10/2004	DPT	MW
LC34-IW0070D	242939.759	463752.665	2.125	0.75	43.00	38.00	43.00	38 to 43	NA	*	NS	Flush	05/16/2005	DPT	MW
LC34-IW0070D1	242941.250	463753.320	2.125	0.75	75.00	65.00	75.00	65 to 75	60 to 65	0.08 to 60	NS	Flush	06/27/2005	DPT	MW
LC34-IW0071D	242909.630	463669.277	2.125	0.75	43.00	38.00	43.00	38 to 43	33 to 38	0.08 to 33	NS	Flush	06/28/2005	DPT	MW
LC34-IW0071D1	242910.236	463667.817	2.125	0.75	75.00	65.00	75.00	65 to 75	60 to 65	0.08 to 60	NS	Flush	06/28/2005	DPT	MW
LC34-IW0076	242880.725	463706.657	6.00	2.00	80.00	70.00	80.00	67 to 80	65 to 67	0.5 to 65	NS	Flush	07/16/2009	Sonic	MW

Notes:

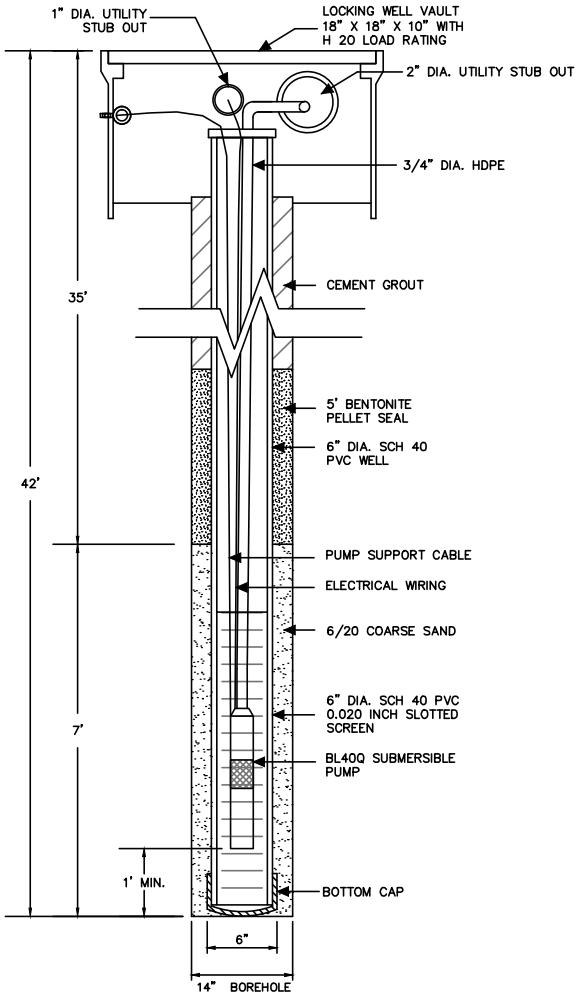
1. Northing and easting are referenced to the Florida State Plane Coordinate System, East Zone North American Datum of 1983.
2. Screen slot size is equal to 0.010 inches for all wells, except RW wells where slot size is 0.020 inches.
3. ft BLS indicates feet below land surface.
4. BW indicates bundle well.
5. DPT indicates direct push technology.
6. HSA indicates hollow stem auger.
7. INJ indicates injection well.
8. MW indicates monitoring well.
9. m indicates meters.
10. NS indicates not surveyed.
11. NA indicates not applicable.
12. RW indicates extraction (recovery) well.
13. UND indicates undetermined.
14. * indicates natural ground collapse.
15. ‡ Grey shading indicates well was lost and presumed destroyed.

Table B-2. Summary of Effluent from Granular Activated Carbon Treatment
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

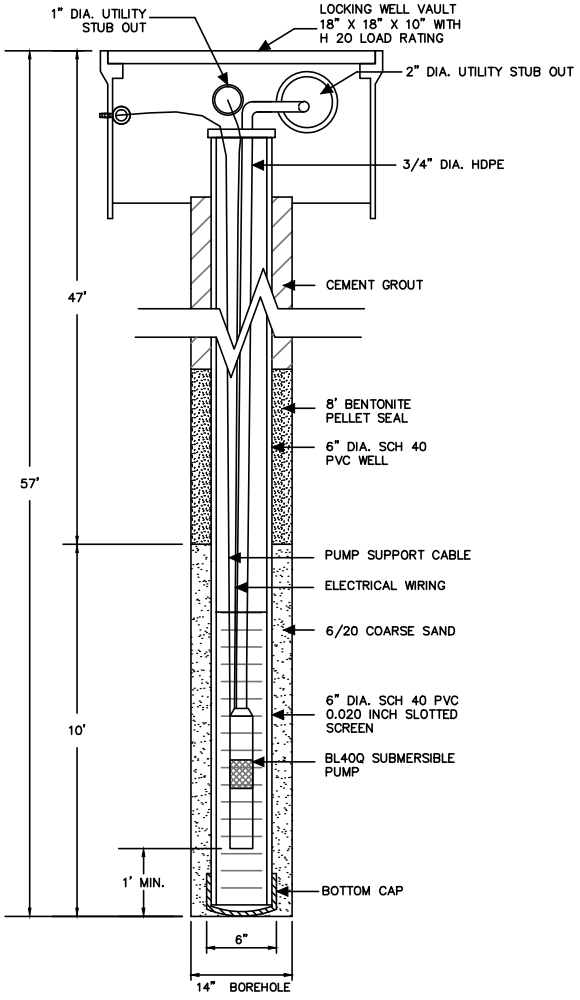
Location	Sample Date	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
GAC Effluent	04/01/2011	0.3 U	0.3 U	0.3 U	0.3 U	0.61 I
	04/01/2011	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U
	04/07/2011	0.3 U	0.3 U	0.3 U	0.3 U	0.6 I
	04/07/2011	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U
	04/18/2011	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U
	04/18/2011	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U

Notes:

1. µg/L indicates micrograms per liter.
2. I indicates the result is between the method detection limit (MDL) and the practical quantitation limit.
3. U indicates result not detected above MDL.
4. Results not displayed to a set number of significant digits.

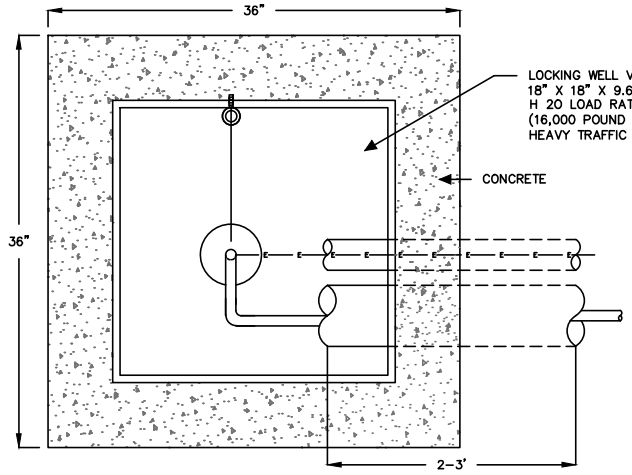


EXTRACTION WELL RW0007



EXTRACTION WELL RW0008

PLAN – LOCKING WELL VAULT



Extraction Well Construction Details

Hot Spot 1, LC34 Cape Canaveral, FL
ESTCP Project ER-0716

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Figure B-1

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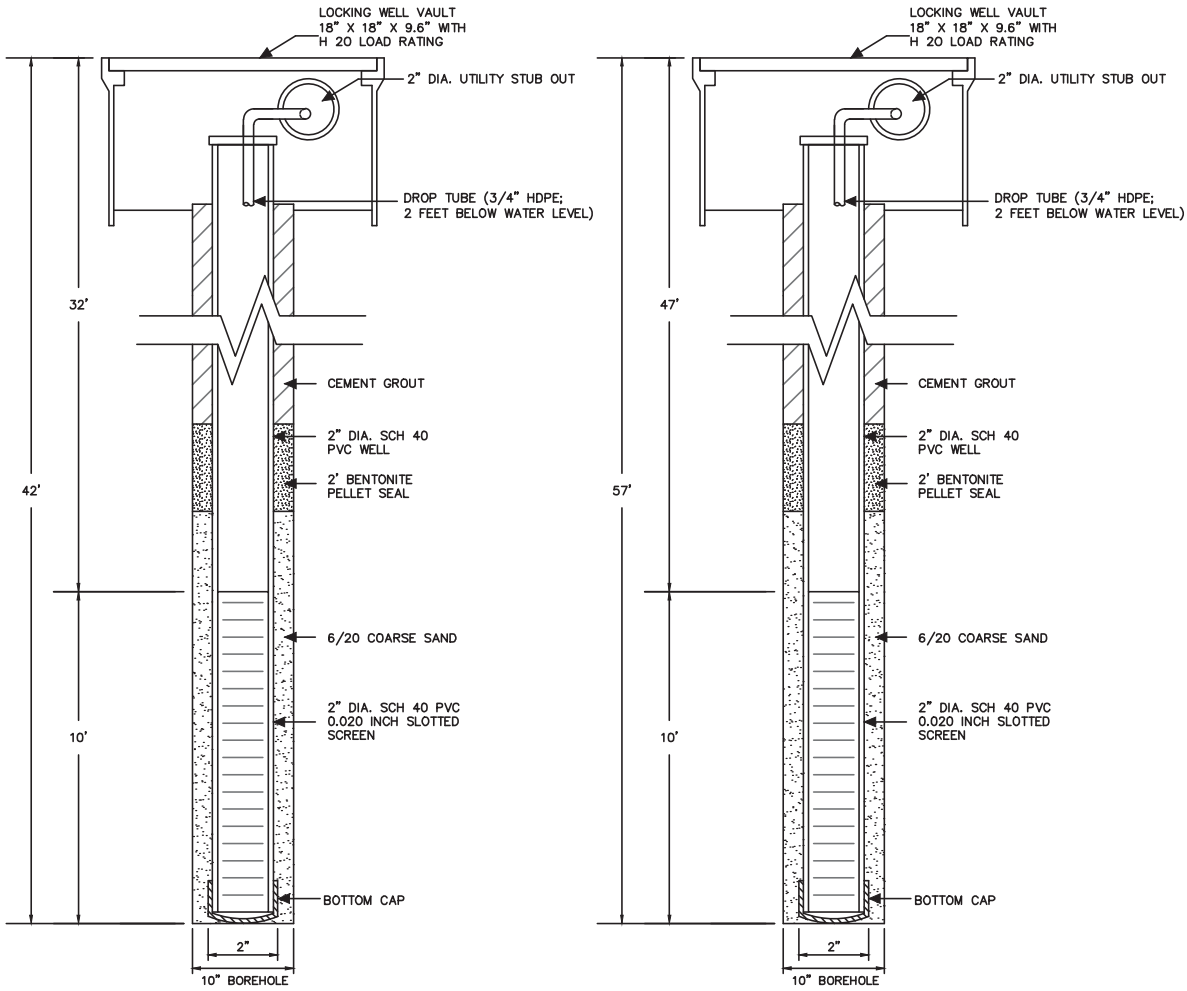
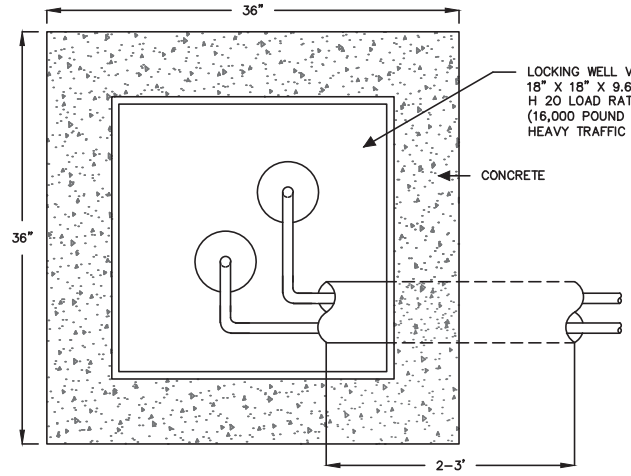


INJECTION WELLS IJ0013, IJ0015, IJ0017, IJ0019, AND IJ0021

INJECTION WELLS IJ0014, IJ0016, IJ0018, IJ0020, AND IJ0022

PLAN – LOCKING WELL VAULT



Injection Well Construction Details

Hot Spot 1, LC34 Cape Canaveral, FL
ESTCP Project ER-0716

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Figure B-2

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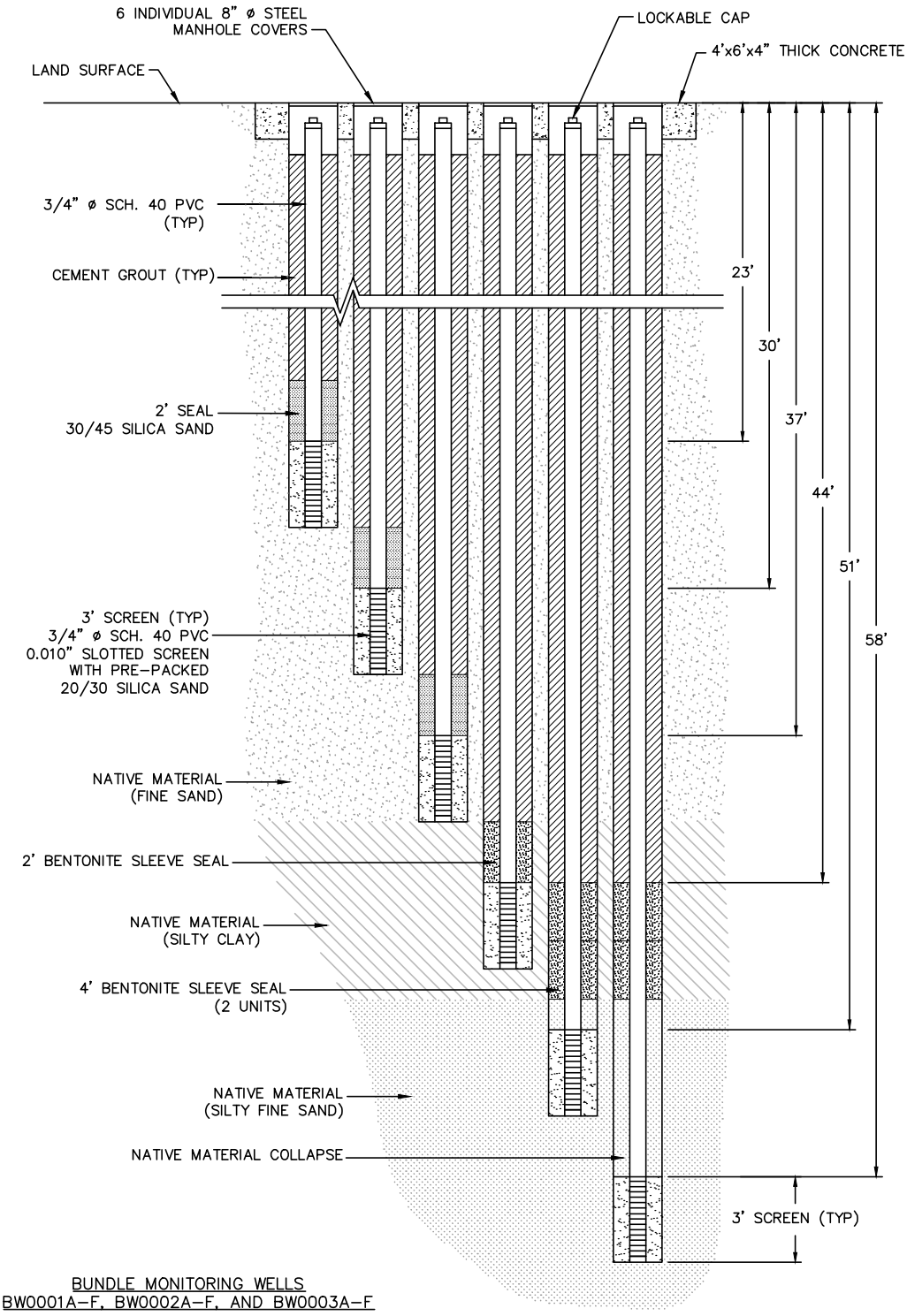

BUNDLE MONITORING WELLS
BW0001A–F, BW0002A–F, AND BW0003A–F

SCREENED INTERVAL (FT BLS)	
A	23 - 26
B	30 - 33
C	37 - 40
D	44 - 47
E	51 - 54
F	58 - 61

Bundle Monitoring Well Construction Details

Hot Spot 1, LC34 Cape Canaveral, FL
ESTCP Project ER-0716

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Figure B-3

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ATTACHMENT B-1

WELL CONSTRUCTION LOGS

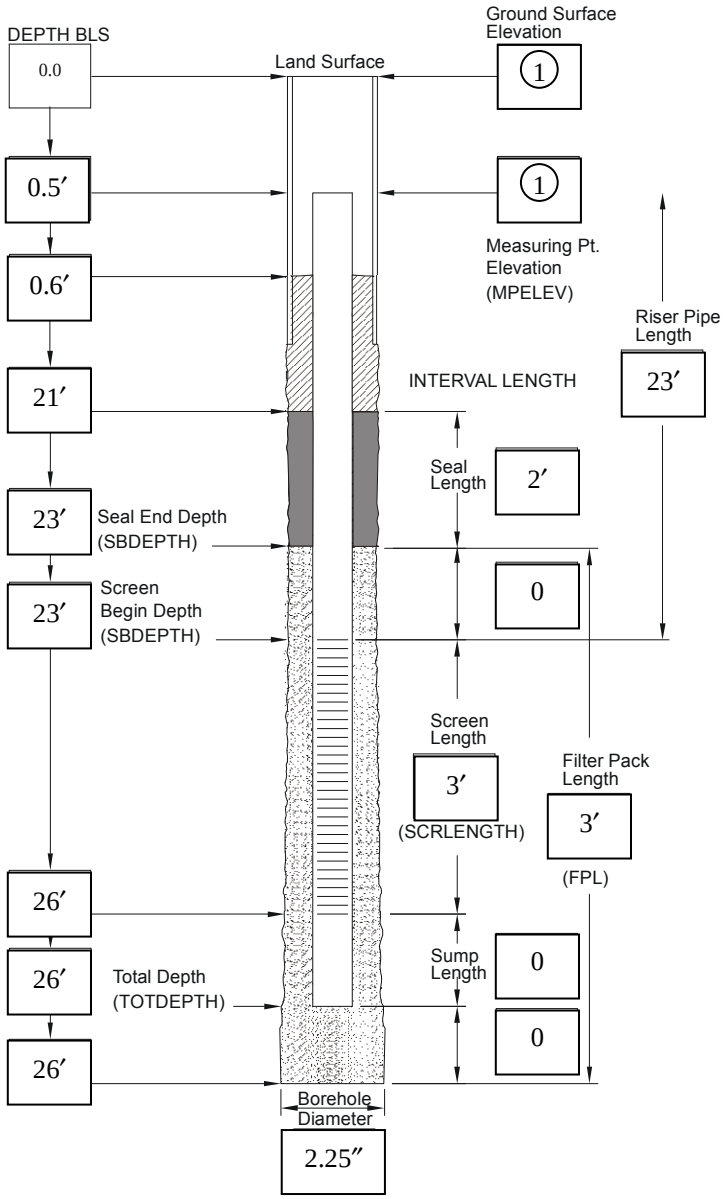
consultants

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0001A

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/20/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/20/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4
Reviewed
By: Date: 2/1/11

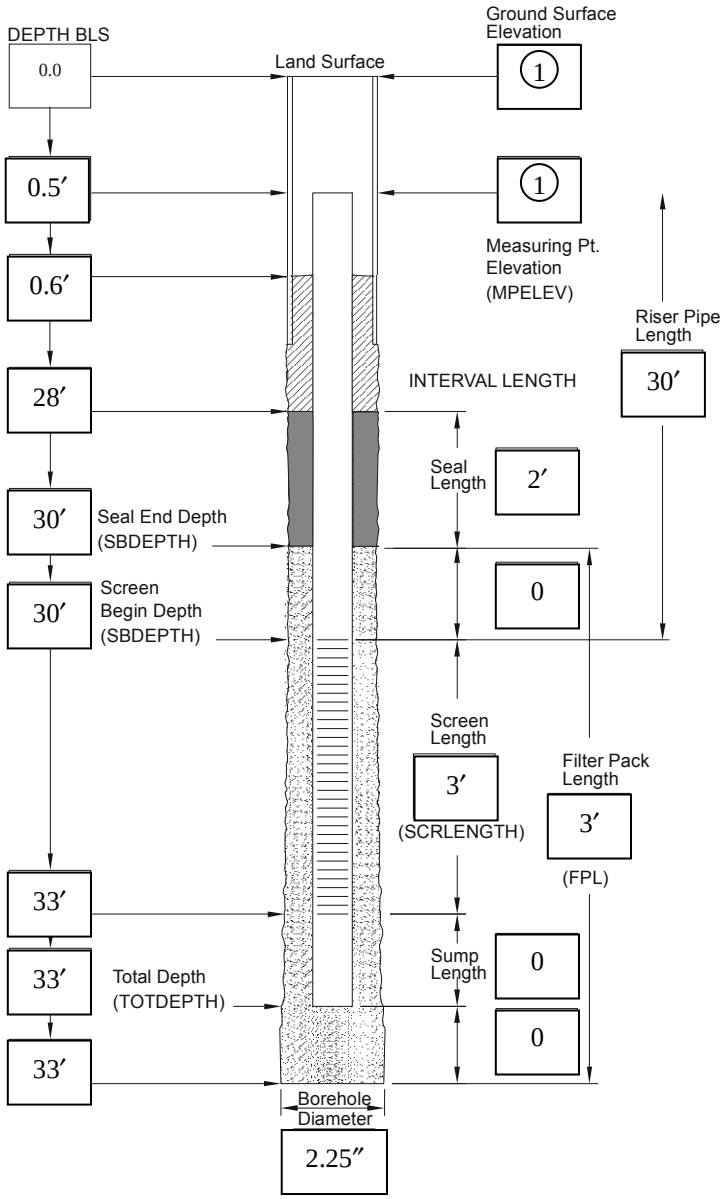
Comments
(1) Not Surveyed
BW0001 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0001B

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/20/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/20/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 7.5
Reviewed
By: Date: 2/1/11

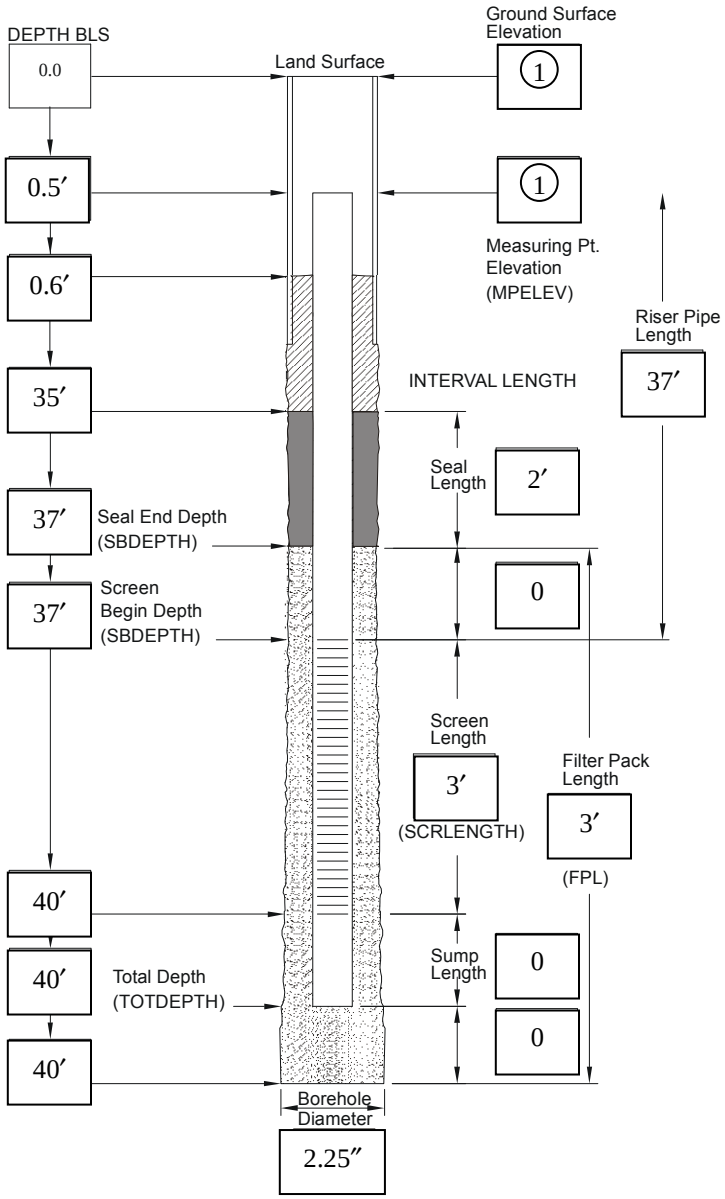
Comments
(1) Not Surveyed
BW0001 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0001C

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/20/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/20/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4.5
Reviewed
By: Date: 2/1/11

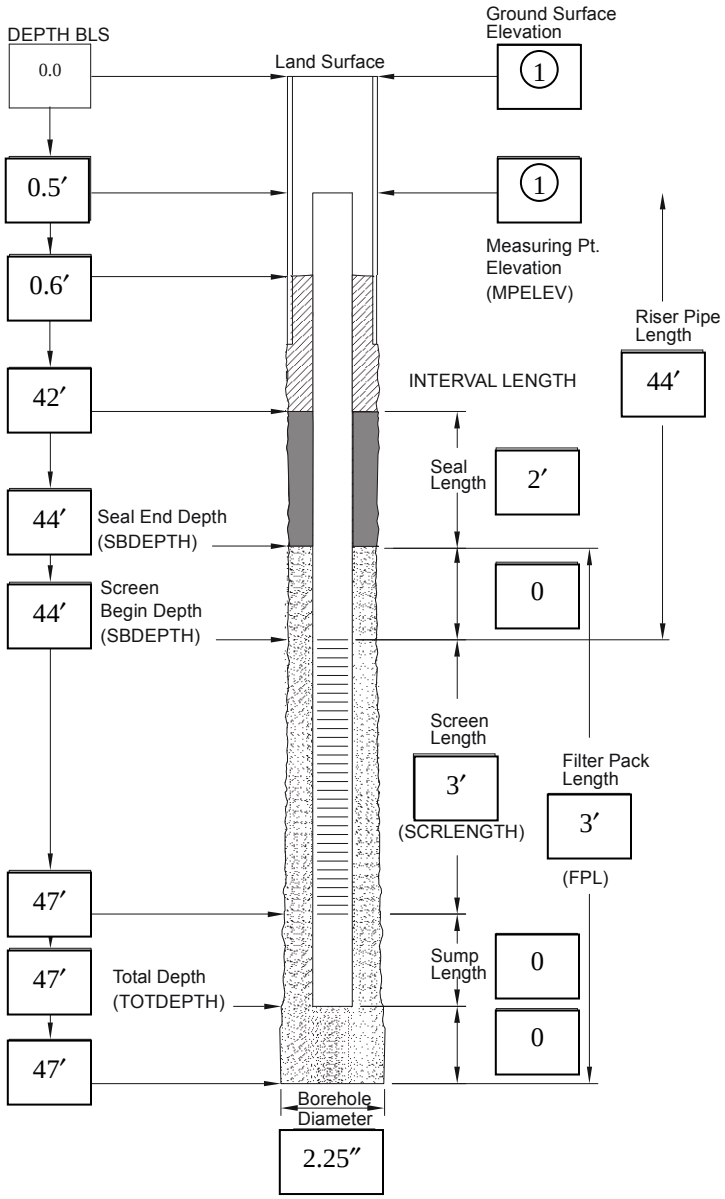
Comments
(1) Not Surveyed
BW0001 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0001D

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/20/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/20/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 6
Reviewed
By: Date: 2/1/11

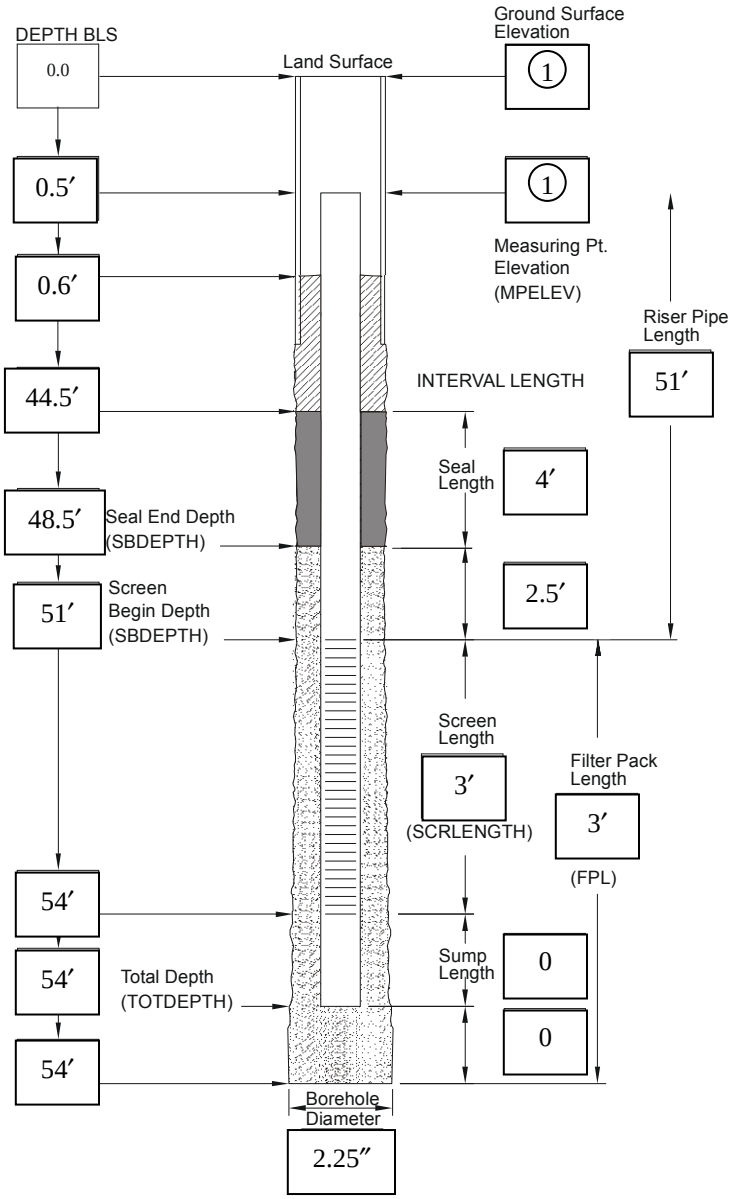
Comments
(1) Not Surveyed
BW0001 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0001E

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/24/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/24/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 5
Reviewed
By: Date: 2/1/11

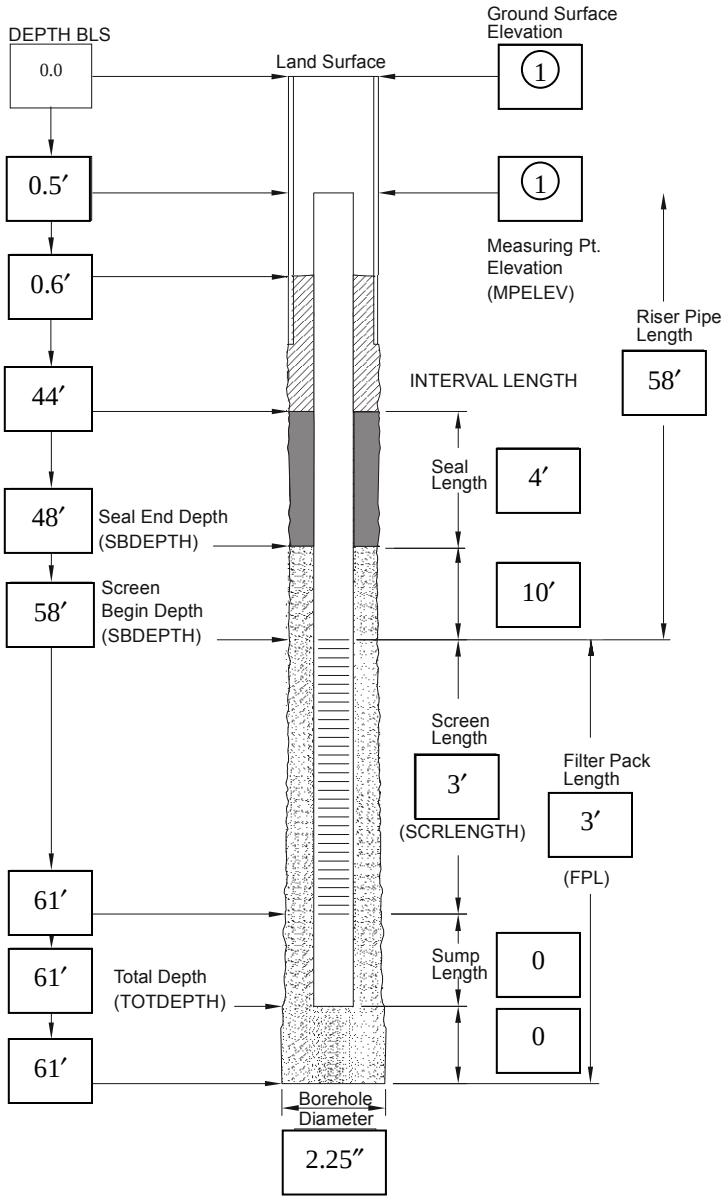
Comments
(1) Not Surveyed
BW0001 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0001F

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/20/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8" Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/20/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4.5
Reviewed
By: Date: 2/1/11

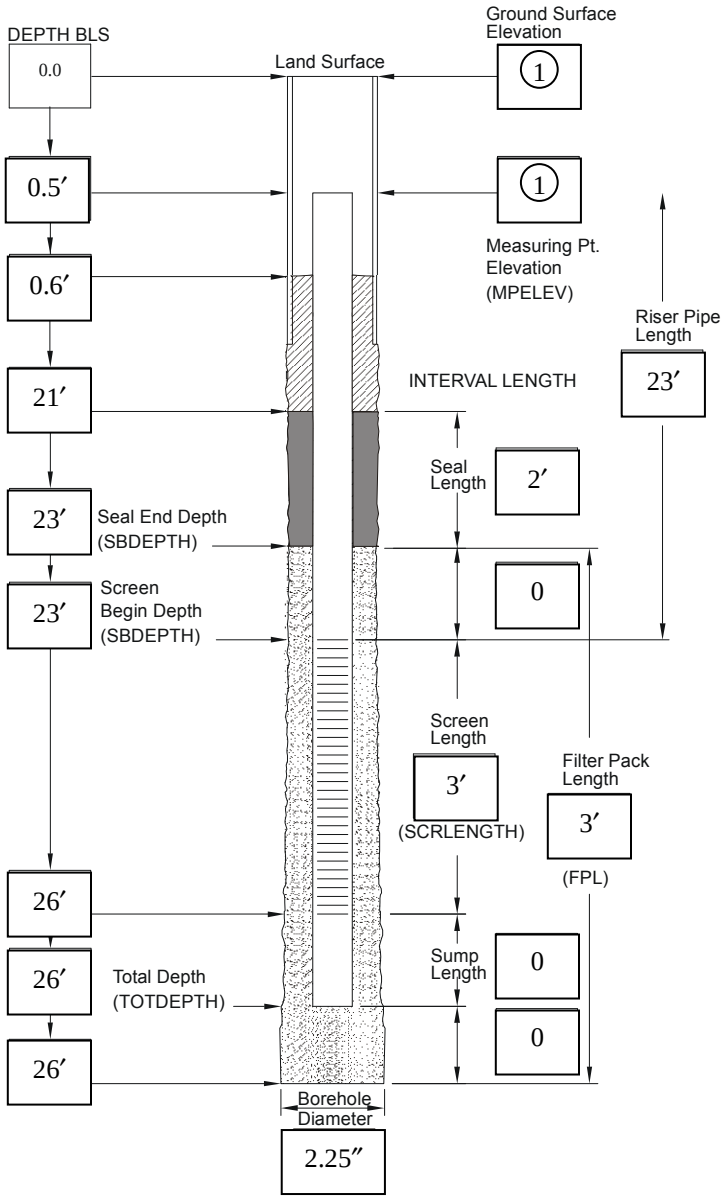
Comments
(1) Not Surveyed
BW0001 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0002A

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/20/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/20/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4.5
Reviewed
By: Date: 2/1/11

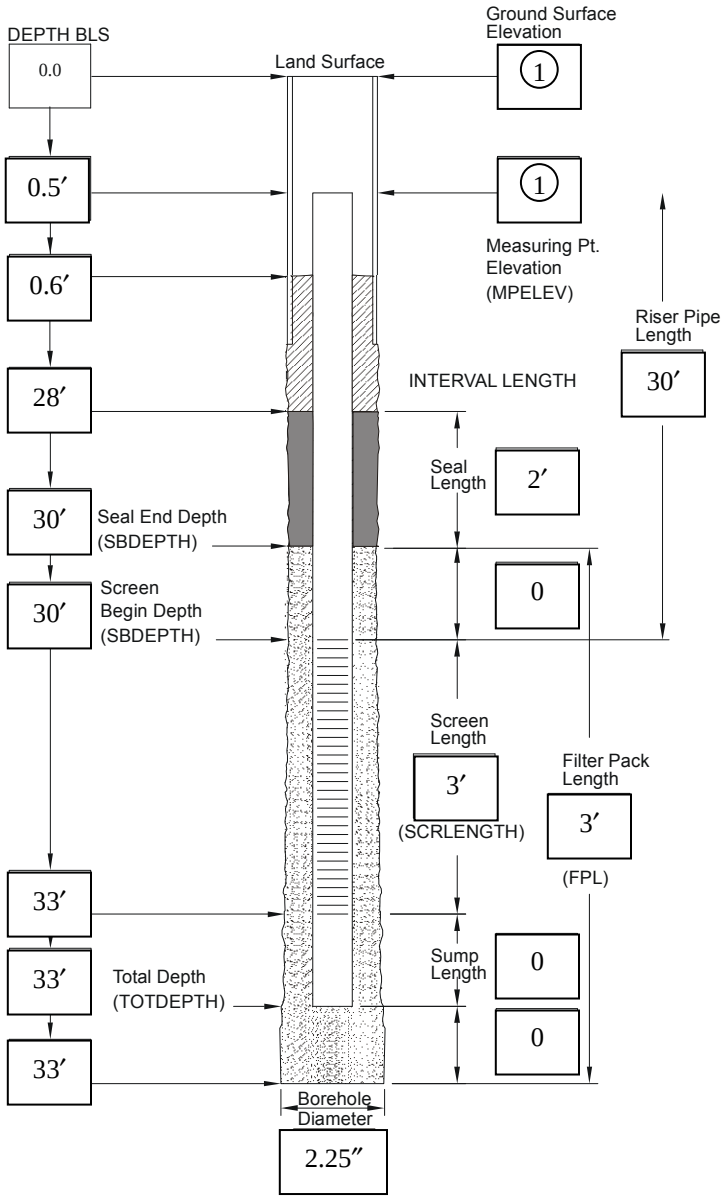
Comments
(1) Not Surveyed
BW0002 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0002B

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/21/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/21/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 3
Reviewed
By: Date: 2/1/11

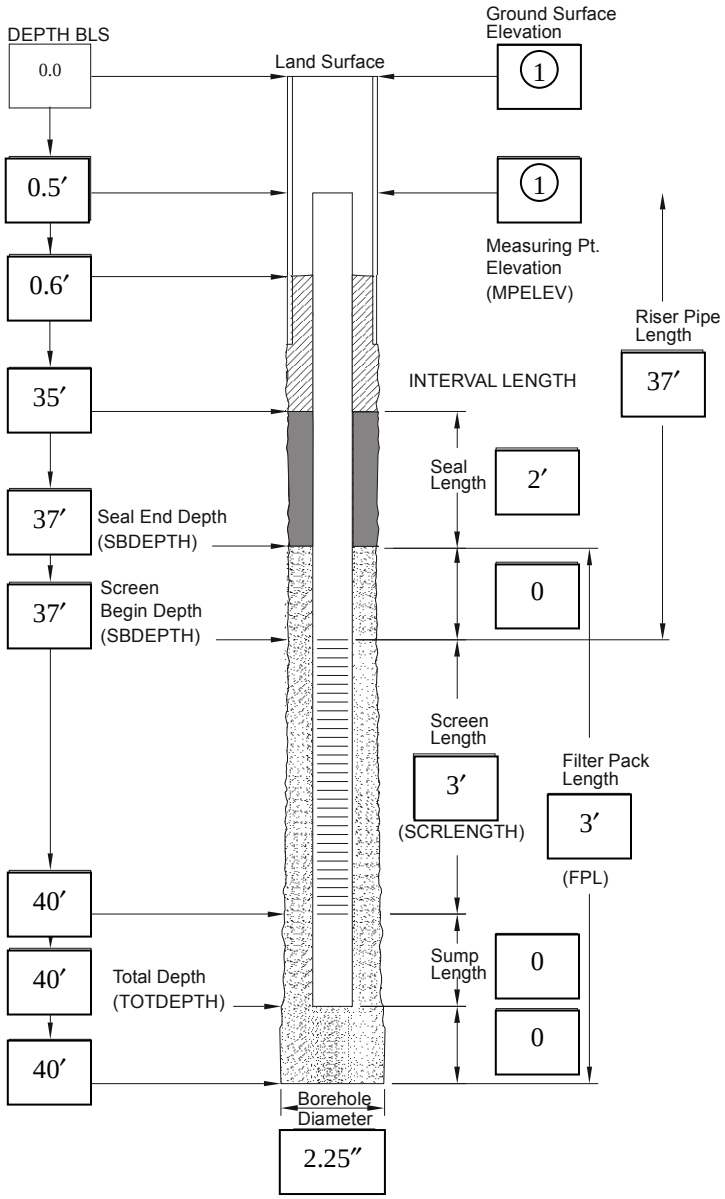
Comments
(1) Not Surveyed
BW0002 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0002C

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/21/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/21/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 6.5
Reviewed
By: Date: 2/1/11

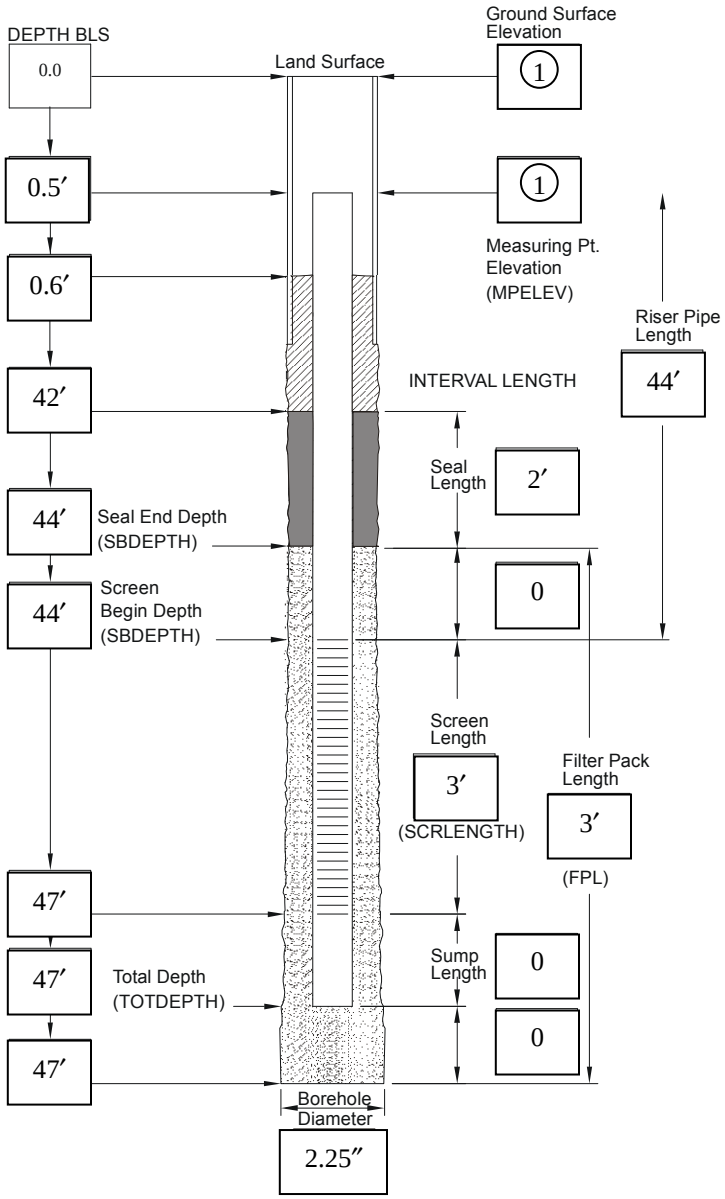
Comments
(1) Not Surveyed
BW0002 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0002D

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/21/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Comments
(1) Not Surveyed
BW0002 A-F in same pad.

Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

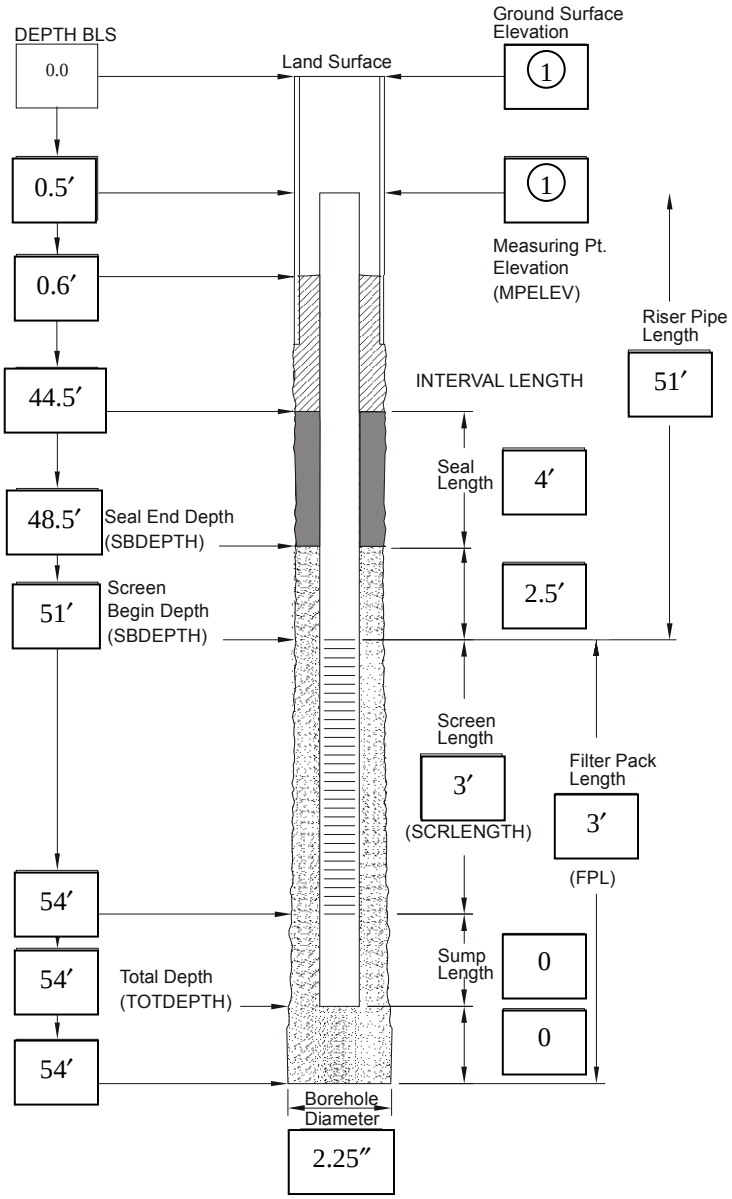
Seal Date: 1/21/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4
Reviewed
By: Date: 2/1/11

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0002E

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/24/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/24/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4.5
Reviewed
By: Date: 2/1/11

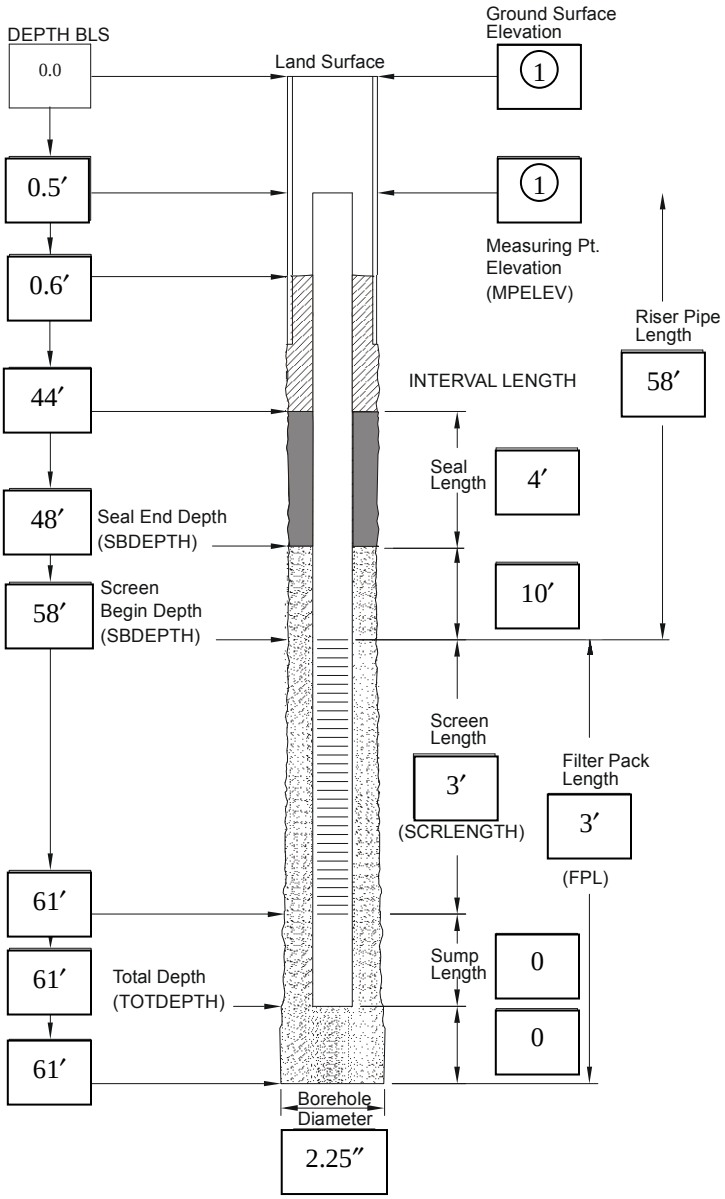
Comments
(1) Not Surveyed
BW0002 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0002F

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/21/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/21/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4.5
Reviewed
By: Date: 2/1/11

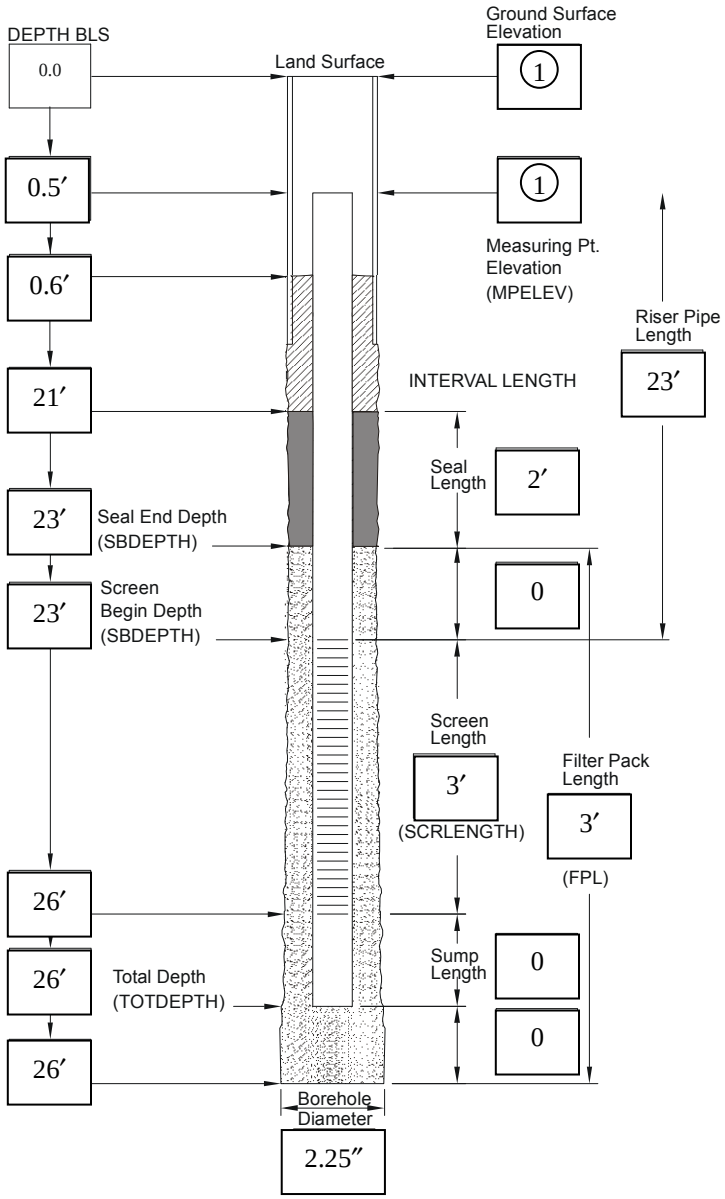
Comments
(1) Not Surveyed
BW0002 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0003A

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/21/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Comments
(1) Not Surveyed
BW0003 A-F in same pad.

Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

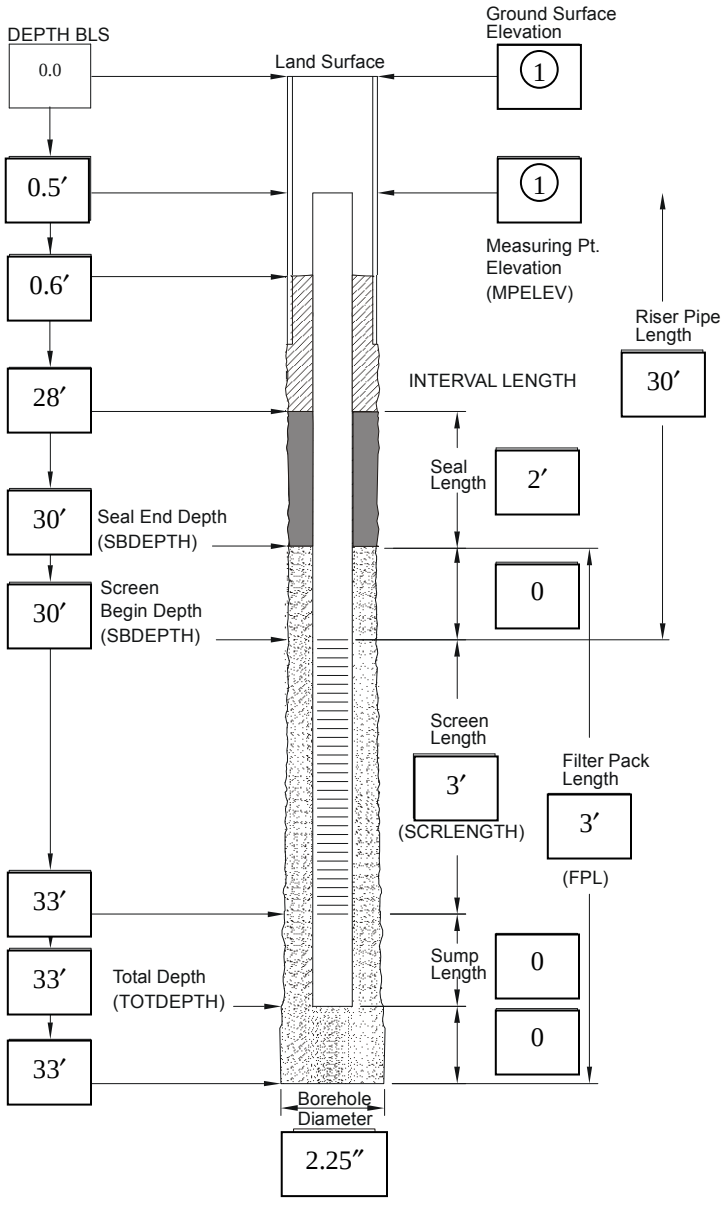
Seal Date: 1/21/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Sand Silica Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 5
Reviewed
By: Date: 2/1/11

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0003B

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/24/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/24/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 5
Reviewed
By: Date: 2/1/11

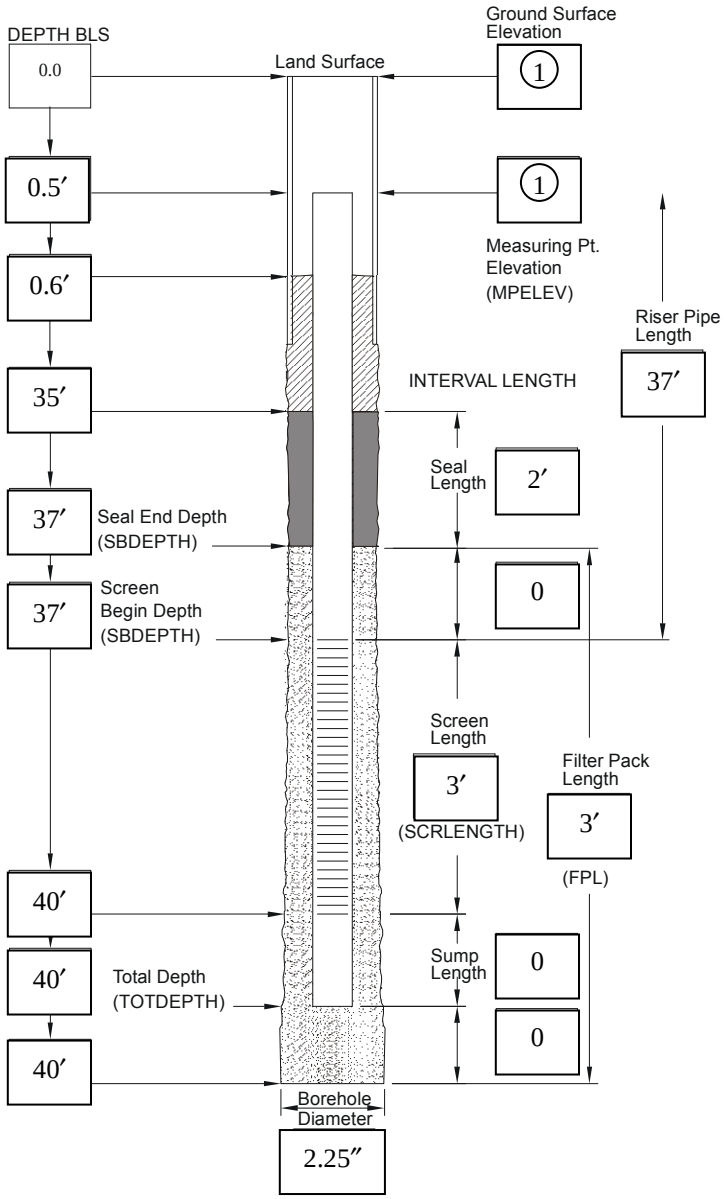
Comments
(1) Not Surveyed
BW0003 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0003C

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/24/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/24/2011
Type: 30/45 Silica Sand
Source: Standard Sand and Silica (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4.5
Reviewed
By: Date: 2/1/11

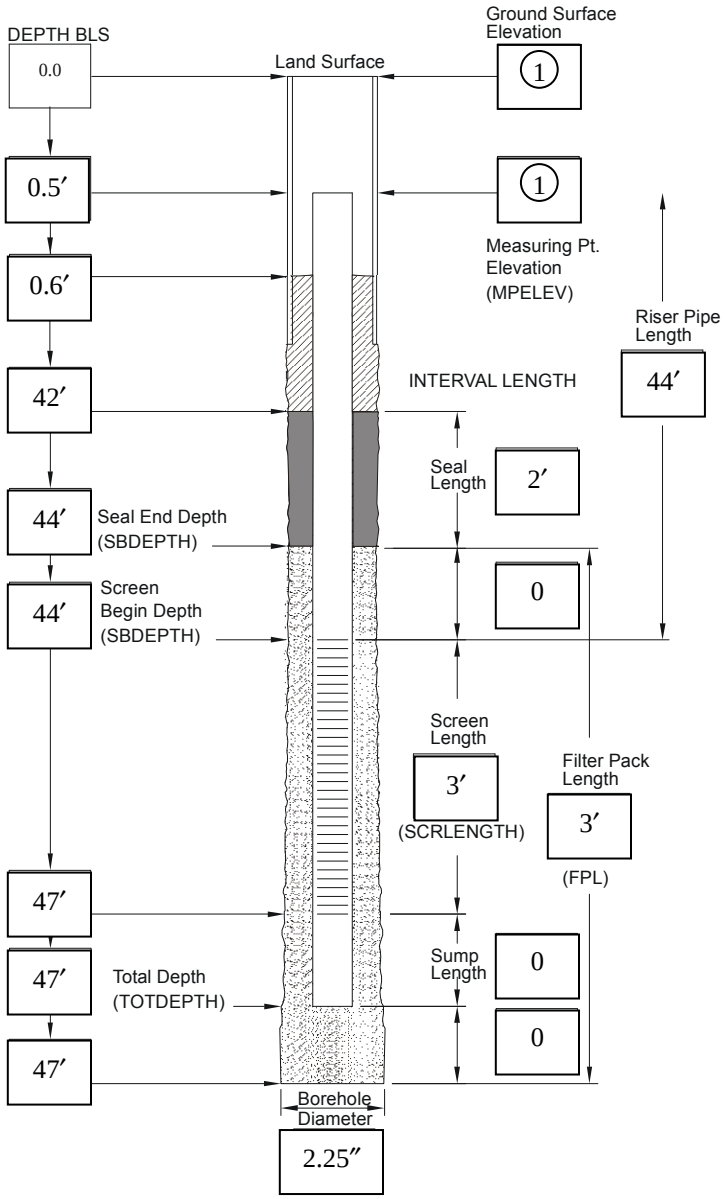
Comments
(1) Not Surveyed
BW0003 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0003D

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/21/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Comments
(1) Not Surveyed
BW0003 A-F in same pad.

Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

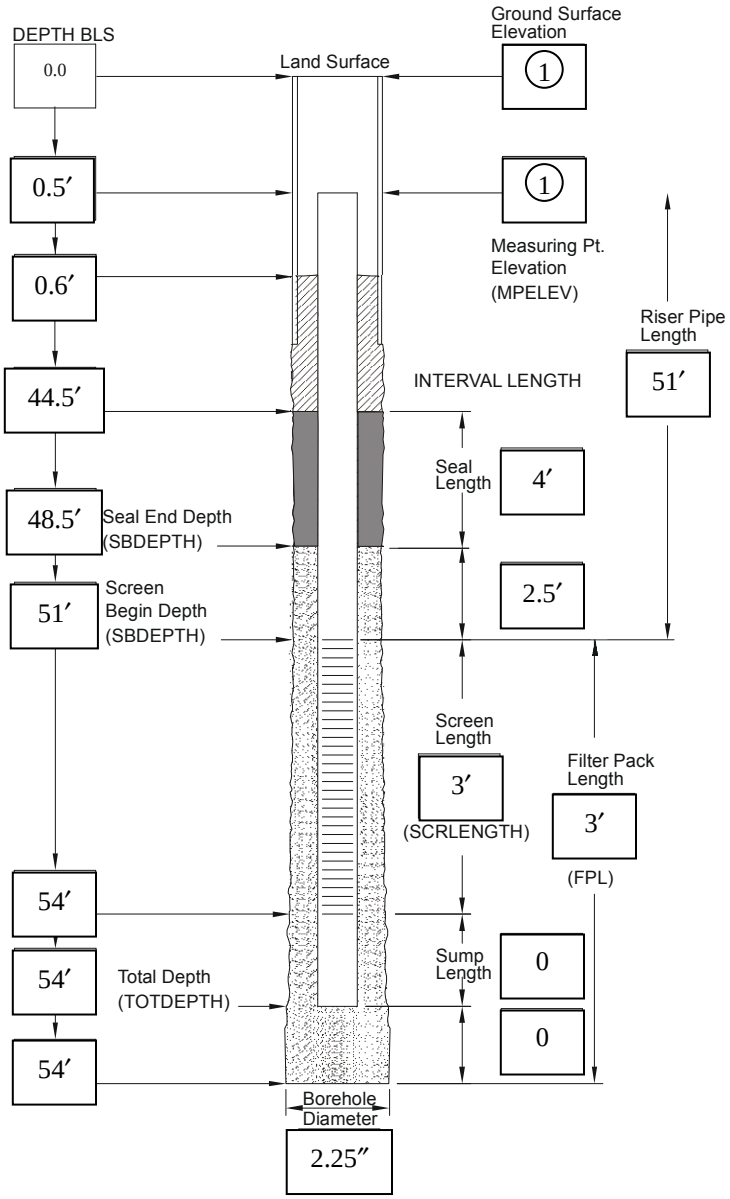
Seal Date: 1/21/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 6
Reviewed
By: Date: 2/1/11

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0003E

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/24/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

Seal Date: 1/24/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 5
Reviewed
By: Date: 2/1/11

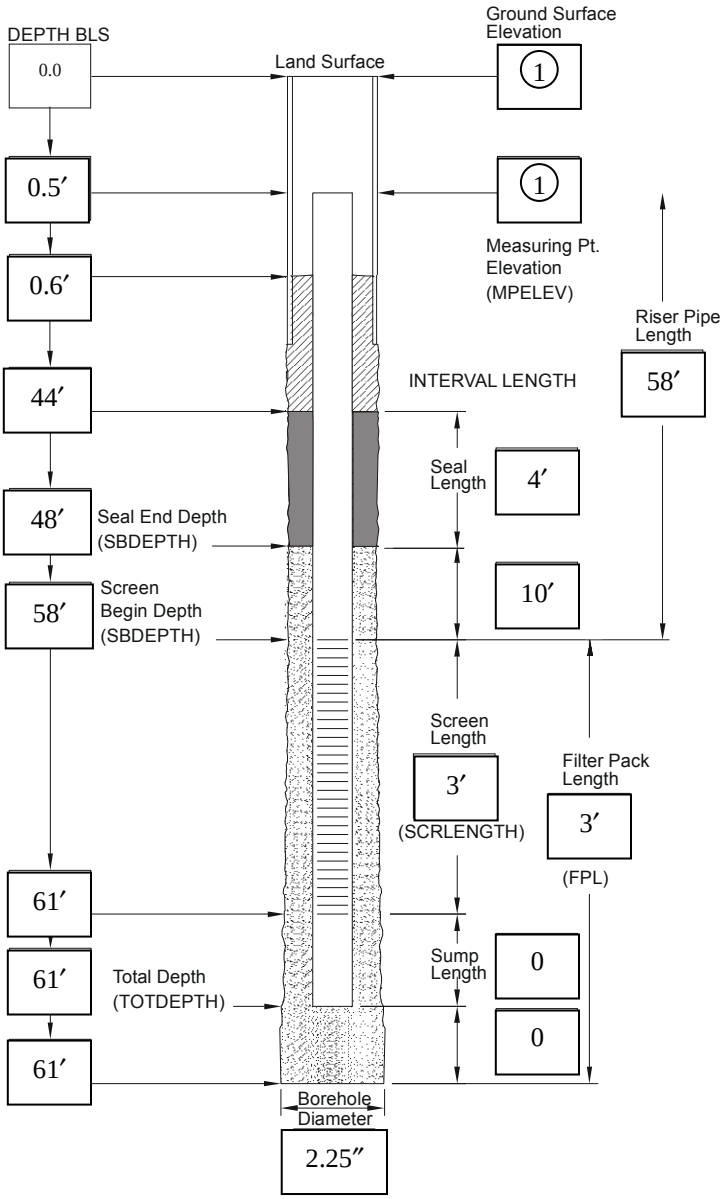
Comments
(1) Not Surveyed
BW0003 A-F in same pad.

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – BW0003F

Drilling Company: EDS
Drillers: Chris Phelps, Keith Olson
Geologist/Engineer: Neil Stapley
Signature: For N.S.

Site: LC34
Project Number: TR0272
Installation Method: DPT
Casing Installation Date: 1/21/2011
Well Type: Monitoring Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Comments
(1) Not Surveyed
BW0003 A-F in same pad.

Well Completion
Guard Posts (Y / (N)) Date: 1/25/2011
Surface Pad Size: 4 ft x 6 ft
Protective Casing or Cover
Diameter/Type: 8″ Steel Manhole
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement
Placement Method: Direct Pour

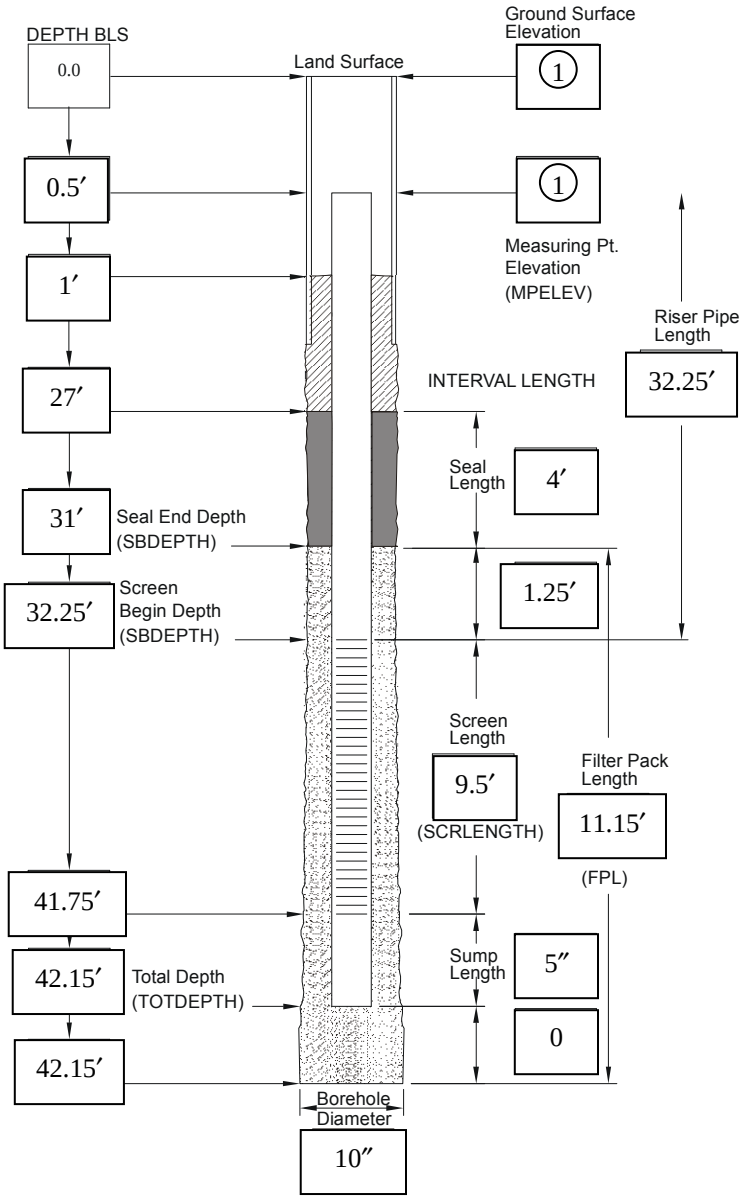
Seal Date: 1/21/2011
Type: Bentonite Sleeve
Source: Geoinsight
Set-up/Hydration Time: ~ 45 min.
Placement Method: Threaded PVC
Vol. Fluid Added: ~ 5 gal.
Filter Pack
Type: 20/30 Silica Sand Pre-Pack
Source: Geoinsight
Amount Used: NA
Placement Method: Threaded PVC
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 3/4 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 3/4 in.
Screen Slot Size: 0.010 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: 0.2″ Bottom Plug (part of pre-pack)
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): NA
Recovered (Gal): ~ 4
Reviewed
By: Date: 2/1/11

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0013

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/20/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/21/2011
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/20/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 15 - 20 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install
Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 11 bags (50 lb. bag)
Placement Method: Direct Pour
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0013 and IJ0014)
Recovered (Gal): ~ 30
Reviewed
By: Date: 1/31/11

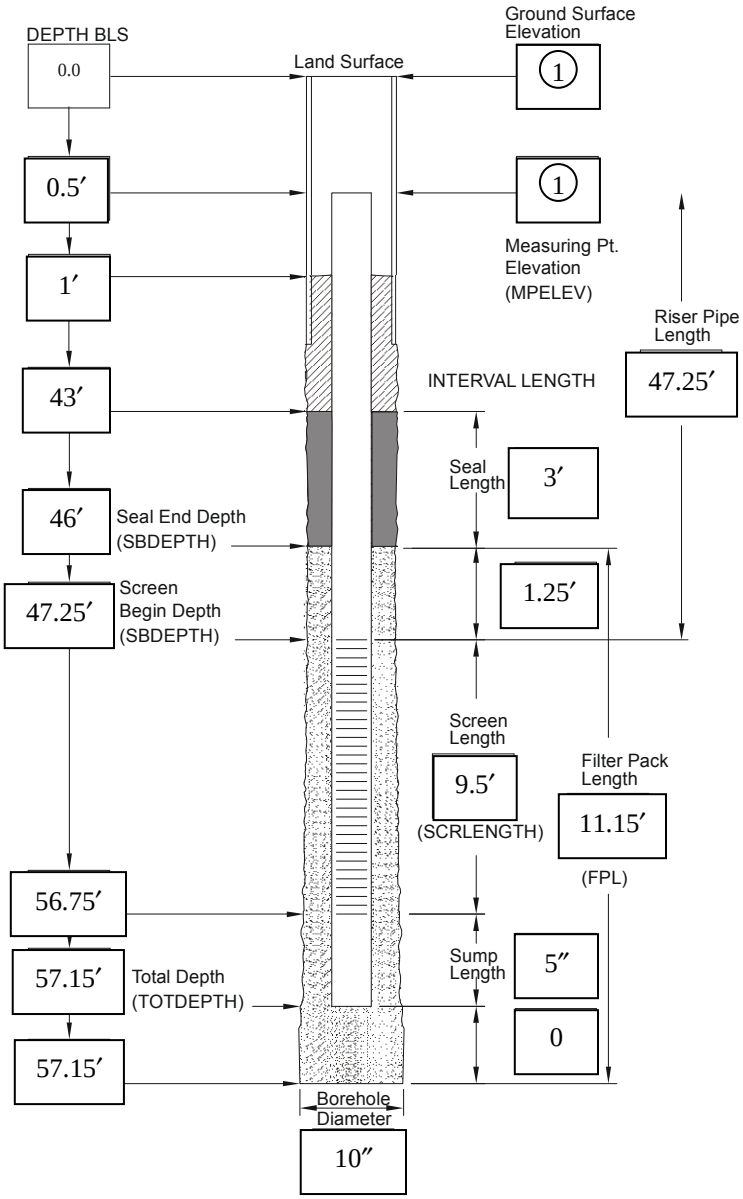
Comments
(1) Not Surveyed
IJ0013 and IJ0014 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0014

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/20/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/21/2011
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/20/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install
Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 13 bags (50 lb. bag)
Placement Method: Direct Pour
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0013 and IJ0014)
Recovered (Gal): ~ 30
Reviewed
By: Date: 1/31/11

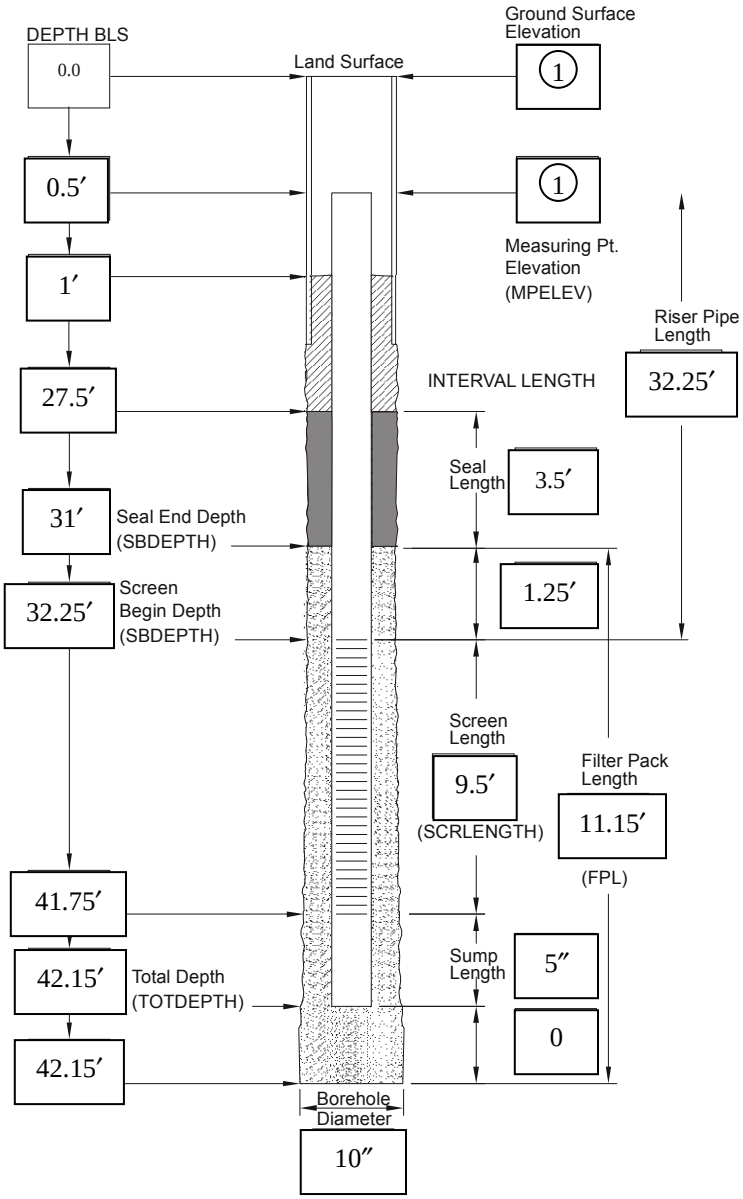
Comments
(1) Not Surveyed
IJ0013 and IJ0014 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0015

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/20/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/20/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 15 - 20 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install
Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 10 bags (50 lb. bag)
Placement Method: Direct Pour
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0015 and IJ0016)
Recovered (Gal): ~ 35
Reviewed
By: Date: 1/31/11

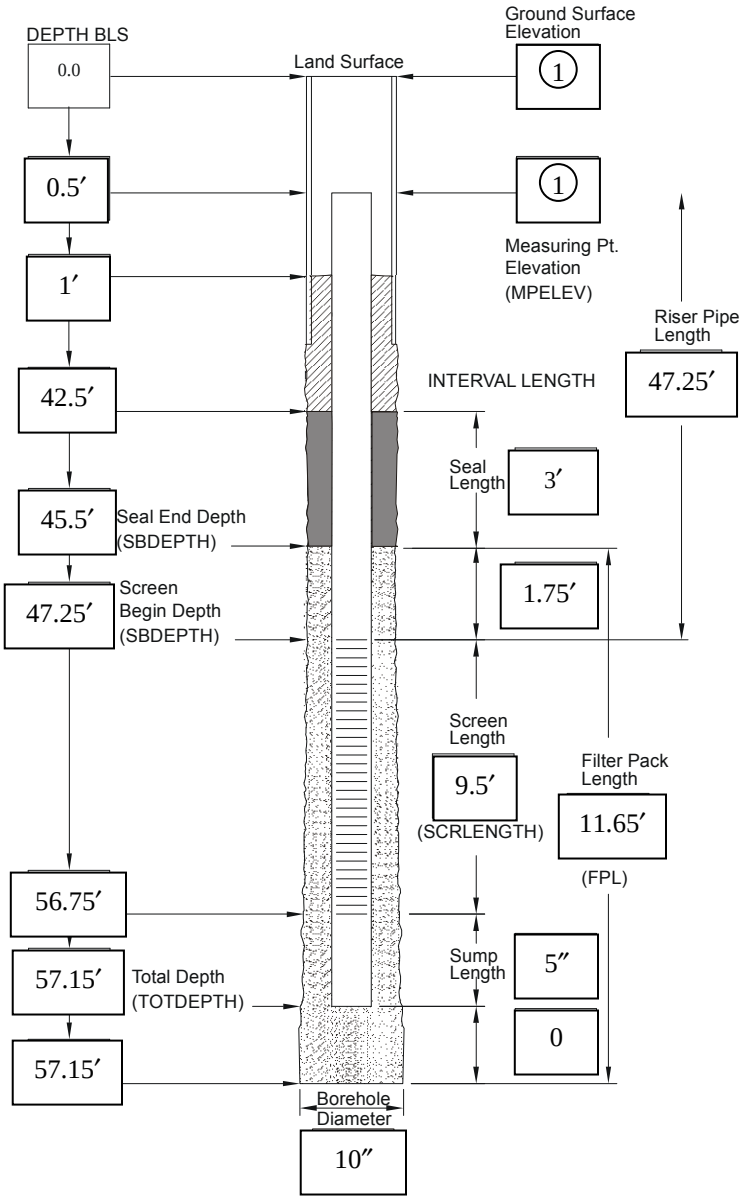
Comments
(1) Not Surveyed
IJ0015 and IJ0016 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0016

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/20/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft

Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))

Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/20/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install

Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 12 bags (50 lb. bag)
Placement Method: Direct Pour

Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.

Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.

Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -

Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0015 and IJ0016)
Recovered (Gal): ~ 30

Reviewed
By: Date: 1/31/11

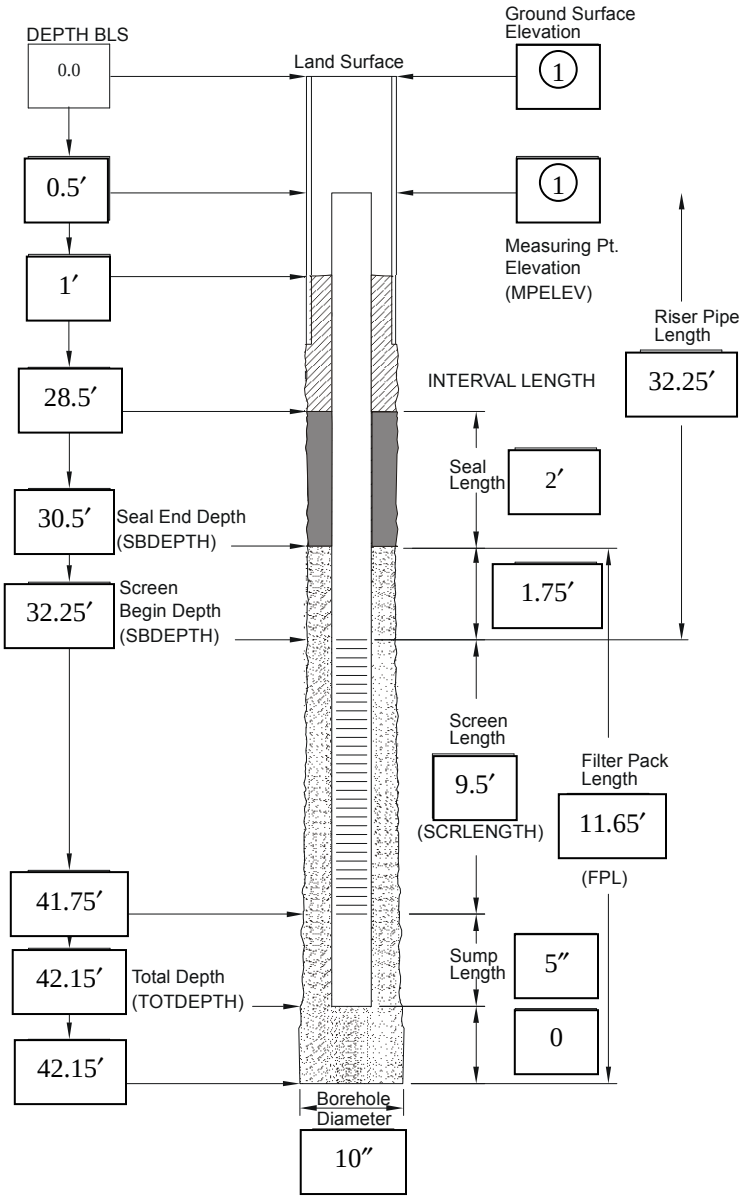
Comments
(1) Not Surveyed
IJ0015 and IJ0016 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0017

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/18/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags/~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/18/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 15 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install
Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 10 bags (50 lb. bag)
Placement Method: Direct Pour
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0017 and IJ0018)
Recovered (Gal): ~ 12
Reviewed
By: Date: 1/31/11

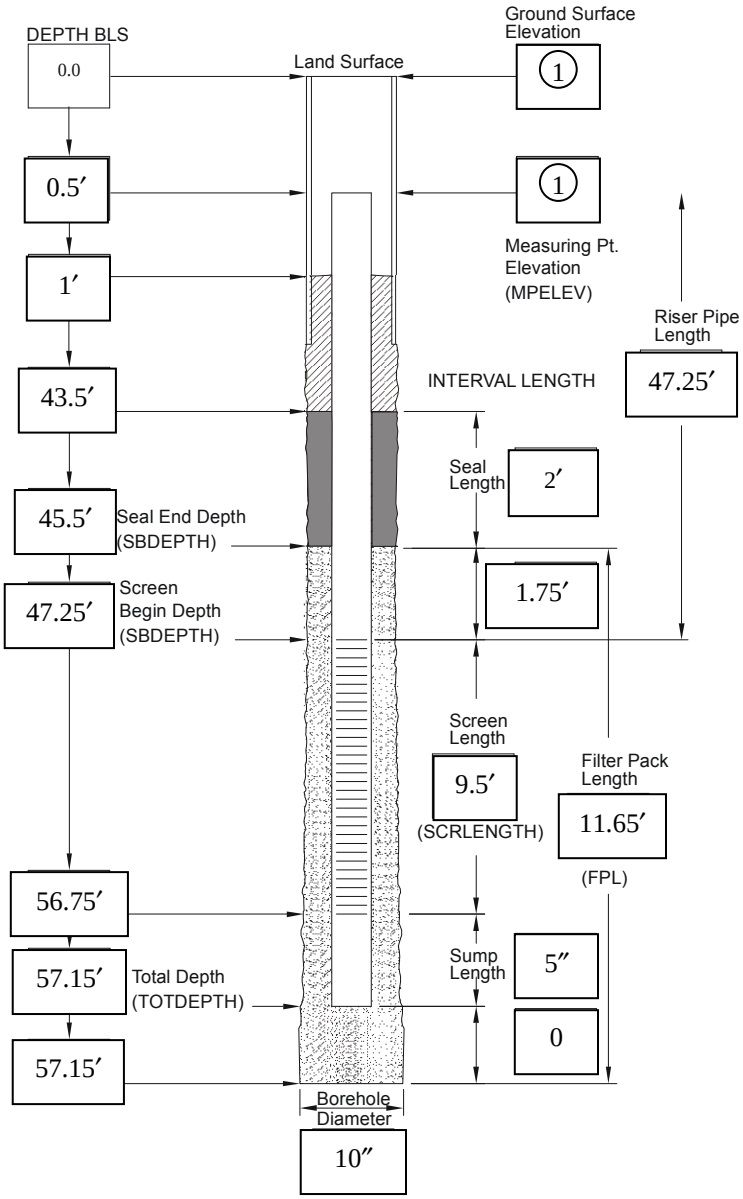
Comments
(1) Not Surveyed
IJ0017 and IJ0018 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0018

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/18/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/18/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install
Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 12 bags (50 lb. bag)
Placement Method: Direct Pour
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0017 and IJ0018)
Recovered (Gal): ~ 25
Reviewed
By: Date: 1/31/11

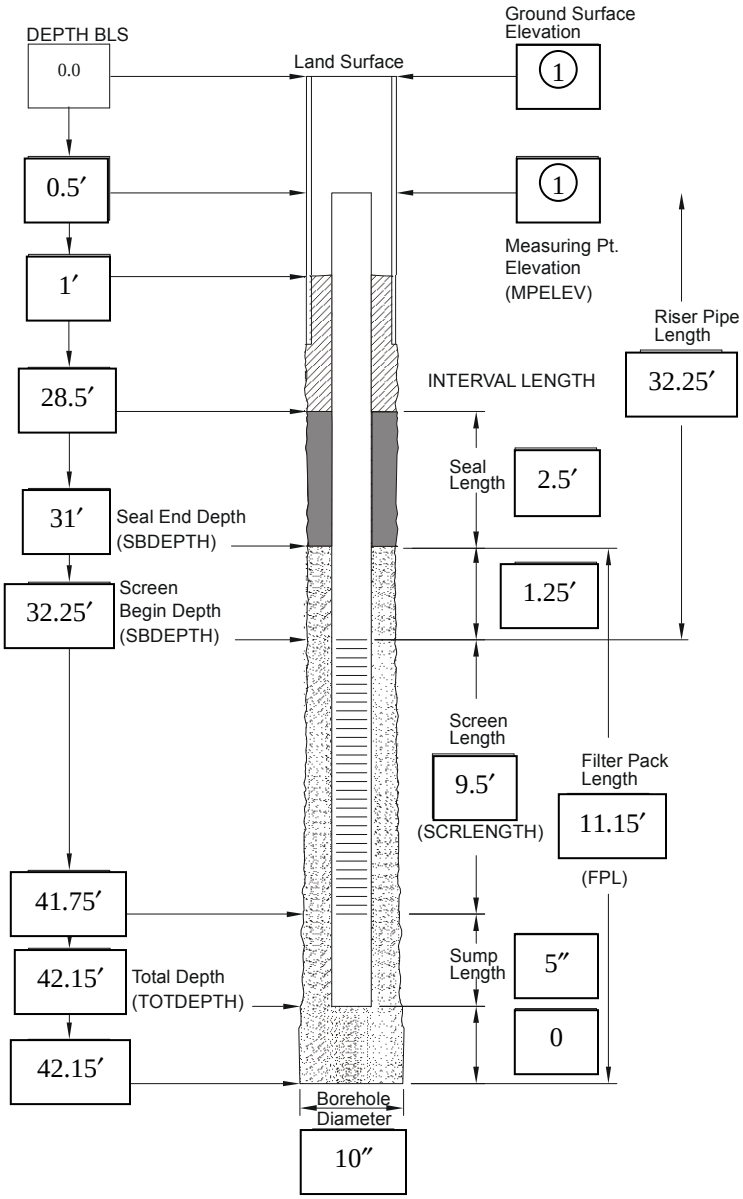
Comments
(1) Not Surveyed
IJ0017 and IJ0018 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0019

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/18/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/18/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 15 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install
Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 12 bags (50 lb. bag)
Placement Method: Direct Pour
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0019 and IJ0020)
Recovered (Gal): ~ 30
Reviewed
By: Date: 1/31/11

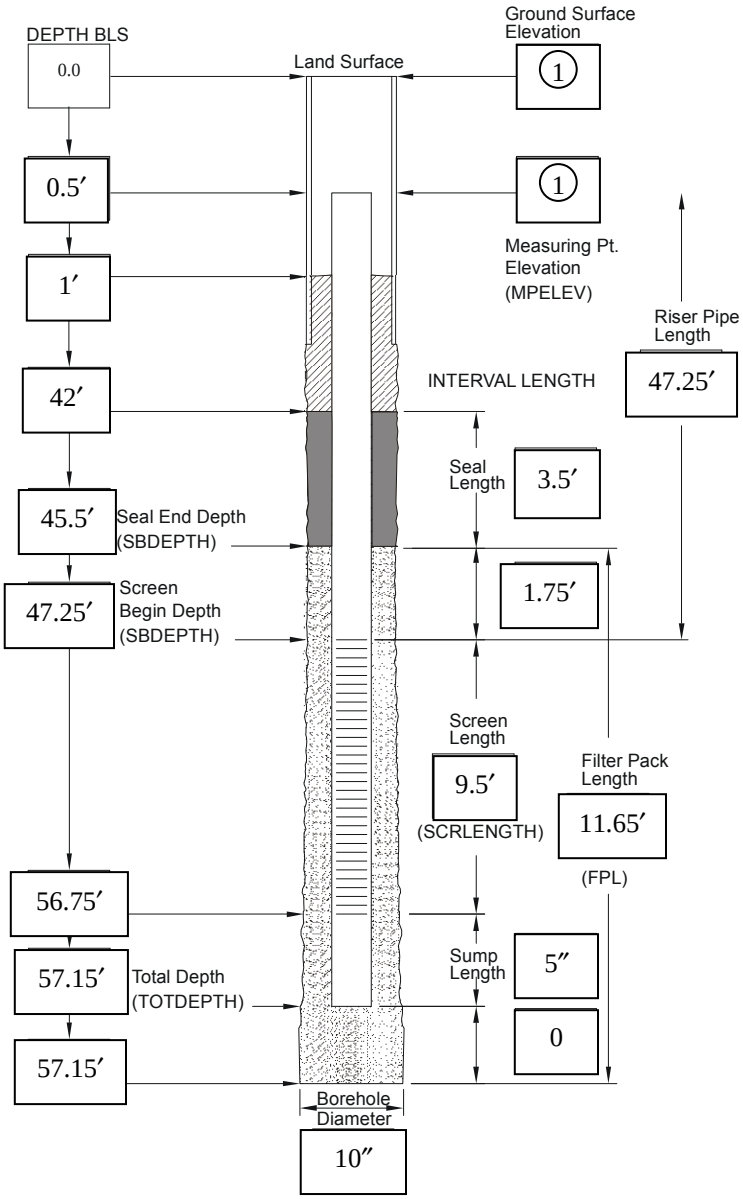
Comments
(1) Not Surveyed
IJ0019 and IJ0020 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0020

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/18/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft

Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))

Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/18/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ¾ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install

Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 12 bags (50 lb. bag)
Placement Method: Direct Pour

Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.

Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.

Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -

Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0019 and IJ0020)
Recovered (Gal): ~ 35

Reviewed
By: Date: 1/31/11

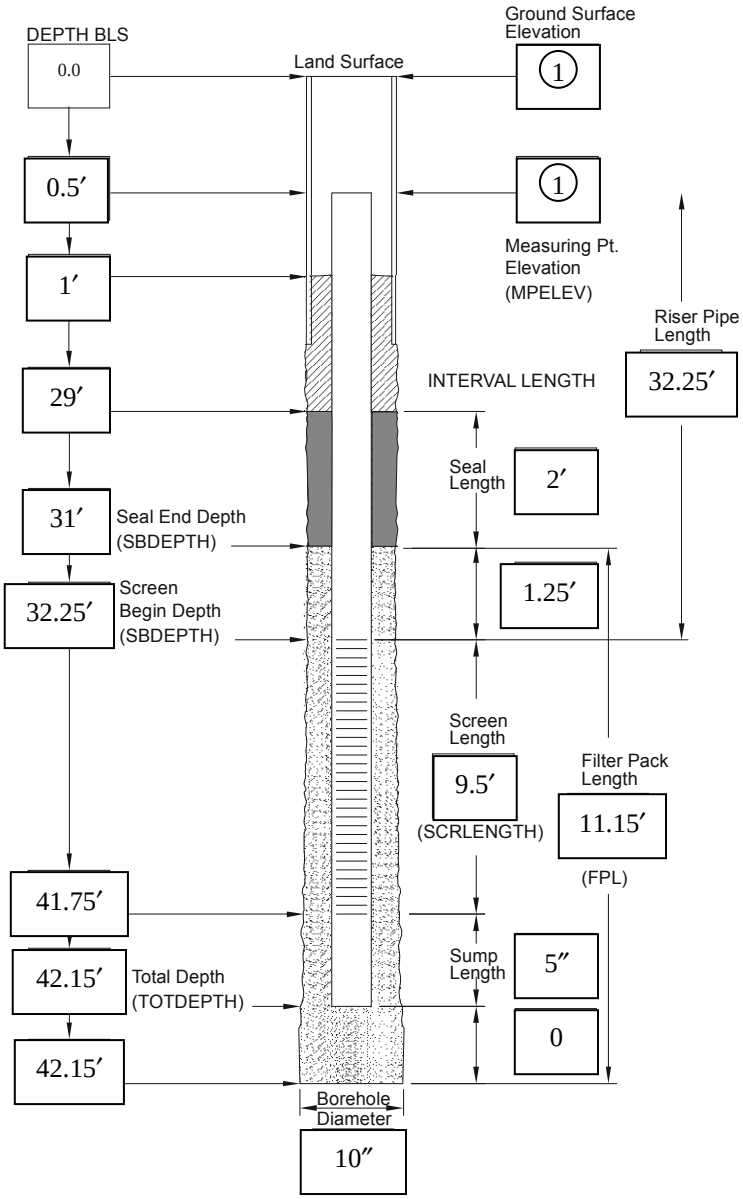
Comments
(1) Not Surveyed
IJ0019 and IJ0020 installed in same borehole

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0021

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/18/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Comments
(1) Not Surveyed
IJ0021 and IJ0022 installed in same borehole

Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft

Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))

Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/18/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 20 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install

Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 10 bags (50 lb. bag)
Placement Method: Direct Pour

Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.

Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.

Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -

Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0021 and IJ0022)
Recovered (Gal): ~ 20

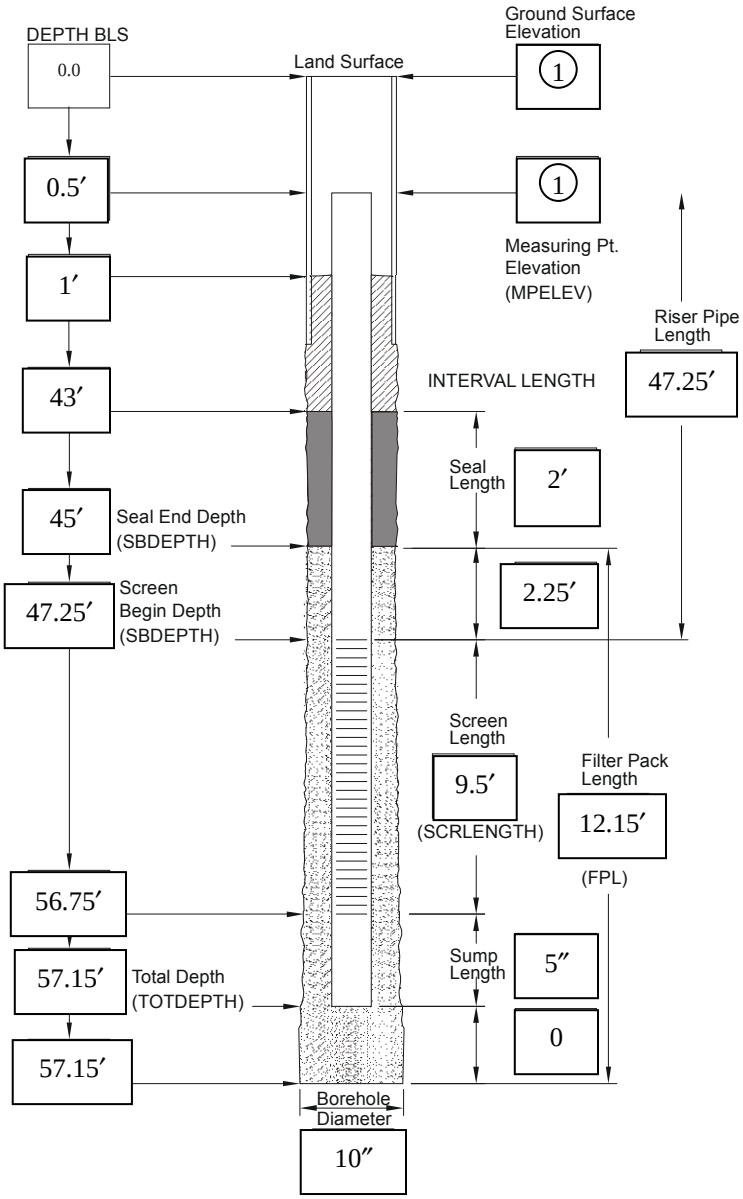
Reviewed
By: Date: 1/31/11

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – IJ0022

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/17/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Comments
(1) Not Surveyed
IJ0021 and IJ0022 installed in same borehole

Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft

Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))

Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 4 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/18/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ ½ bag / 50 lb. bag)
Set-up/Hydration Time: 0 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install

Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 9 bags (50 lb. bag)
Placement Method: Direct Pour

Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 2 in.

Screen
Material: SCH 40 PVC
Inside Diameter: 2 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 5 in.

Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -

Total Water Volume During Construction
Introduced (Gal): ~ 75 (for IJ0021 and IJ0022)
Recovered (Gal): ~ 20

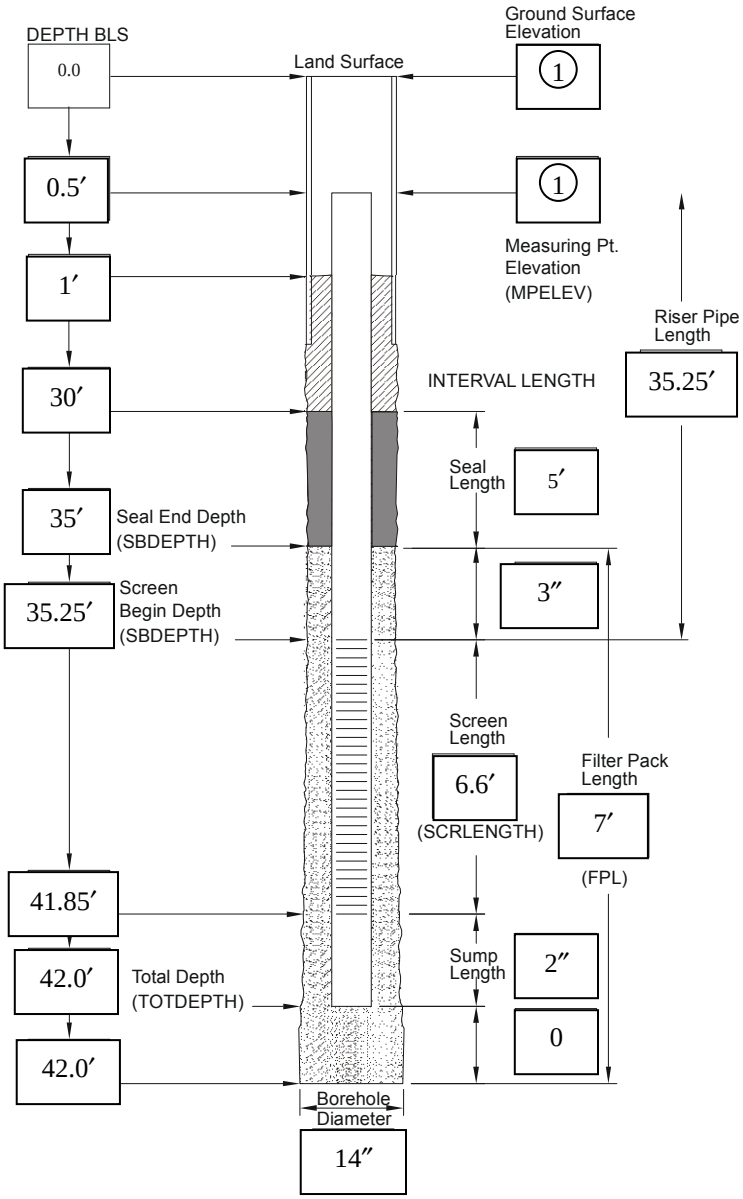
Reviewed
By: Date: 1/31/11

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – RW0007

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature: [signature]

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/21/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))
Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 6 bags / ~ 45 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/21/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ 1 bag / 50 lb. bag)
Set-up/Hydration Time: 15 - 20 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install
Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 9 bags (50 lb. bag)
Placement Method: Direct Pour
Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 6 in.
Screen
Material: SCH 40 PVC
Inside Diameter: 6 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 2 in.
Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -
Total Water Volume During Construction
Introduced (Gal): ~ 180
Recovered (Gal): ~ 85
Reviewed
By: [signature] Date: 3/8/11

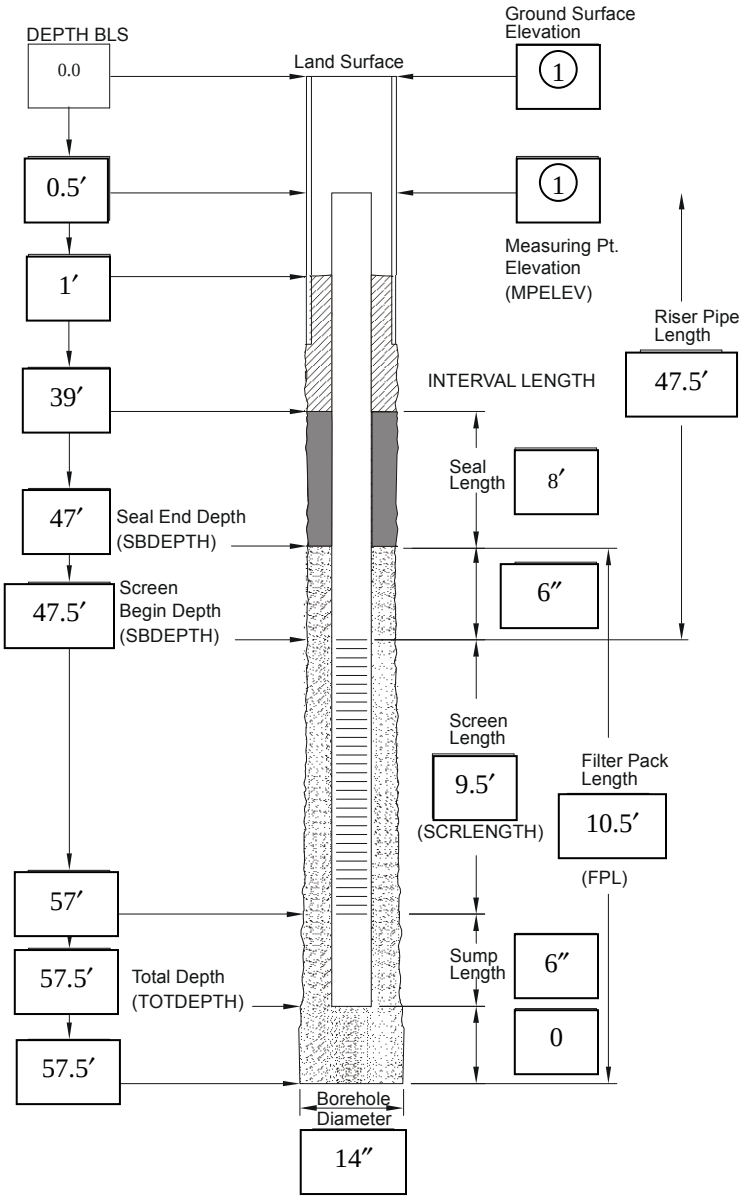
Comments
(1) Not Surveyed
Cut 10 ft screen to make 7 ft screen, attached slip cap on with screws

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: LC34 – RW0008

Drilling Company: EDS
Drillers: Mike Miller, Cory Cone, Carl Leonhardt
Geologist/Engineer: Rebecca Daprato
Signature:

Site: LC34
Project Number: TR0272
Installation Method: HSA
Casing Installation Date: 1/19/2011
Well Type: Injection Well
Well Completion Method: Flush Mount
Geologic Completion Zone: Surficial



Well Completion
Guard Posts (Y / (N)) Date: 1/24/2011
Surface Pad Size: 3 ft x 3 ft

Protective Casing or Cover
Diameter/Type: 18″ x 18″ x 10″ Vault Box
Depth BGS: - Weep Hole (Y / (N))

Grout
Composition/Proportions: ASTM C1157, Type GU Portland/Limestone Cement (~ 5 bags / ~ 20 gal.)
Placement Method: Tremie w/ pump

Seal Date: 1/19/2011
Type: Bentonite Chips (3/8″)
Source: Hole Plug (~ 1 bag / 50 lb. bag)
Set-up/Hydration Time: 15 - 20 min.
Placement Method: Direct Pour
Vol. Fluid Added: 0 gal., water added to casing for install

Filter Pack
Type: 6/20 Silica Sand
Source: Standard Sand and Silica
Amount Used: ~ 13 bags (50 lb. bag)
Placement Method: Direct Pour

Well Riser Pipe
Casing Material: SCH 40 PVC
Casing Inside Diameters: 6 in.

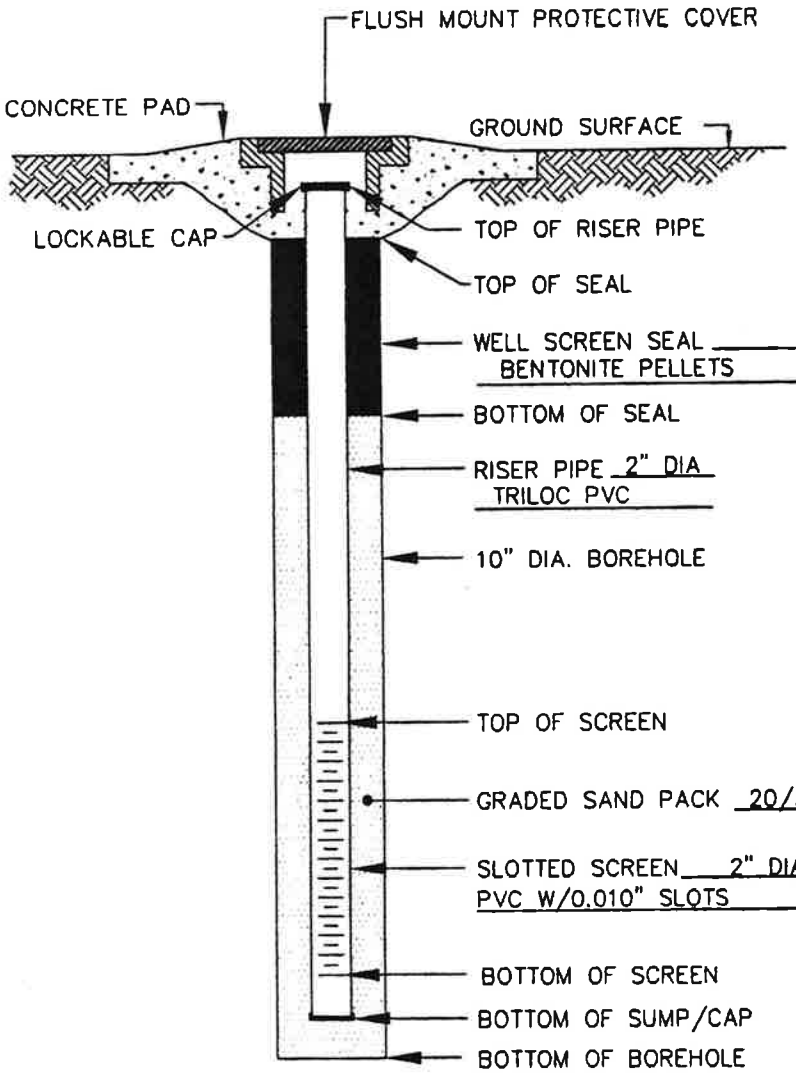
Screen
Material: SCH 40 PVC
Inside Diameter: 6 in.
Screen Slot Size: 0.020 in.
Percent Open Area: -
Sump or Bottom Cap ((Y) / N)
Type/Length: ~ 6 in.

Backfill Plug (Y / (N))
Material: -
Placement Method: -
Set-up/Hydration Time: -

Total Water Volume During Construction
Introduced (Gal): ~ 110
Recovered (Gal): ~ 100

Reviewed
By: Date: 3/8/11

Comments
(1) Not Surveyed
Hole collapsed at top – possible old location of MW
Casing set at ~ 45 ft in clay



	DEPTH
GROUND SURFACE	0.0
TOP OF RISER PIPE	0.4
TOP OF SEAL	1.0
BOTTOM OF SEAL	1.5
TOP OF SCREEN	2.0
BOTTOM OF SCREEN	12.0
BOTTOM OF SUMP/CAP	12.0
BOTTOM OF BOREHOLE	12.0

WELL ID LC34-IW-2S

ELEV. TOP OF RISER 8.57

ELEV. GROUND SURFACE 9.02

SCREENED INTERVAL -2.98 TO 7.02

DATE INSTALLED 02/12/98

Construction Notes:

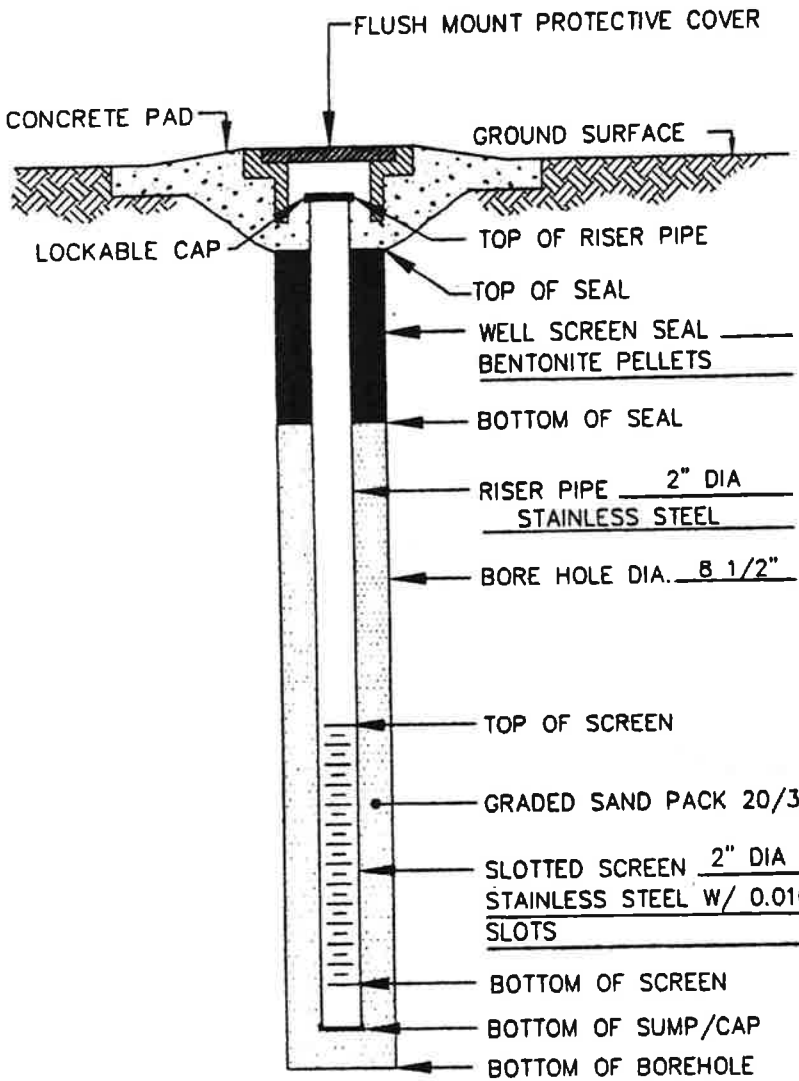
Remarks:

SECTION VIEW

NOTE:
1.) ALL DEPTHS AND ELEVATIONS ARE IN FEET.
2.) ELEVATIONS REFERENCED TO PROJECT BENCHMARK.

CRA SERVICES

11/25/98 Date	Rev. No.	22778-05-001 Drawing No.	NASA KENNEDY SPACE CENTER, FLORIDA Client	LAUNCH COMPLEX 34 CAPE CANAVERAL AIR STATION, FLORIDA Project Location	MONITOR WELL CROSS-SECTION	Fig No.
MKL Drawn by	Checked By	Approved By				



	DEPTH
GROUND SURFACE	0.0
TOP OF RISER PIPE	0.4
TOP OF SEAL	22.0
BOTTOM OF SEAL	23.0
TOP OF SCREEN	25.0
BOTTOM OF SCREEN	30.0
BOTTOM OF SUMP/CAP	30.0
BOTTOM OF BOREHOLE	30.0

WELL ID LC34-IW-21

ELEV. TOP OF RISER 8.54

ELEV. GROUND SURFACE 8.94

SCREENED INTERVAL -21.06 TO -16.06

DATE INSTALLED 05/22/97

Construction Notes: WELL CONSTRUCTED OF STAINLESS STEEL RISER AND SCREEN.

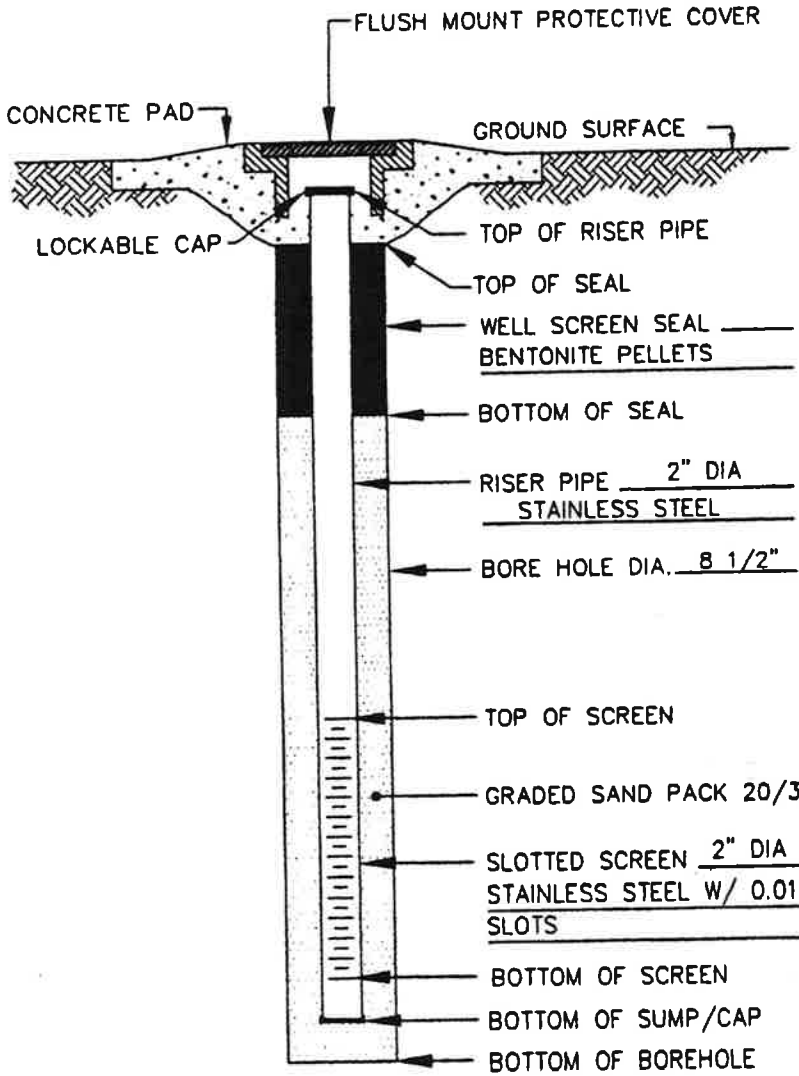
Remarks:

SECTION VIEW

NOTE:
1.) ALL DEPTHS AND ELEVATIONS ARE IN FEET.
2.) ELEVATIONS REFERENCED TO PROJECT BENCHMARK.

G&E ENGINEERING
A Division of Tech/Ark - CRA Company
ENVIRONMENTAL CONSULTANTS

12/9/97 Date	Rev. No.	6E-2778-A4 Drawing No.	**NASA** KENNEDY SPACE CENTER, FLORIDA Client	**LAUNCH COMPLEX 34** CAPE CANAVERAL AIR STATION, FLORIDA Project Location	**MONITOR WELL CROSS-SECTION**	Fig No.
MKL Drawn by	Checked By	Approved By				



	DEPTH
GROUND SURFACE	0.0
TOP OF RISER PIPE	+0.3
TOP OF SEAL	32.0
BOTTOM OF SEAL	33.0
TOP OF SCREEN	35.0
BOTTOM OF SCREEN	40.0
BOTTOM OF SUMP/CAP	40.0
BOTTOM OF BOREHOLE	40.0

WELL ID LC34-IW-2D

ELEV. TOP OF RISER 9.42

ELEV. GROUND SURFACE 9.14

SCREENED INTERVAL -30.86 TO -25.86

DATE INSTALLED 05/22/97

Construction Notes: WELL CONSTRUCTED OF STAINLESS STEEL RISER AND SCREEN.

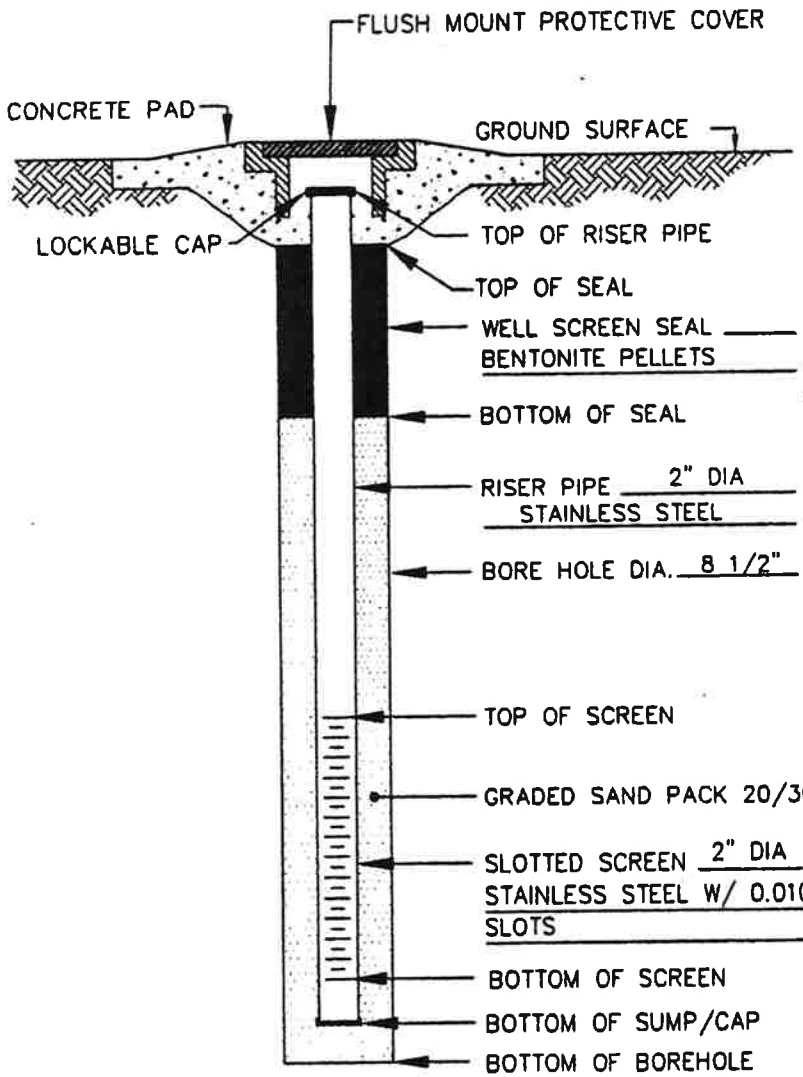
Remarks:

SECTION VIEW

NOTE:
1.) ALL DEPTHS AND ELEVATIONS ARE IN FEET.
2.) ELEVATIONS REFERENCED TO PROJECT BENCHMARK.

G&E ENGINEERING
A Division of Tetra Tech - GR&E company
ENVIRONMENTAL CONSULTANTS

12/9/97 Date	Rev. No.	6E-2778-A5 Drawing No.	**NASA** KENNEDY SPACE CENTER, FLORIDA Client	**LAUNCH COMPLEX 34** CAPE CANAVERAL AIR STATION, FLORIDA Project Location	**MONITOR WELL CROSS-SECTION** Fig No.
MKL Drawn by	Checked By	Approved By			



	DEPTH
	0.0
	0.2
	47.0
	48.0
	50.0
	55.0
	55.0
	55.0

WELL ID LC34-IW-2D1

ELEV. TOP OF RISER 8.81

ELEV. GROUND SURFACE 8.99

SCREENED INTERVAL -46.01 TO -41.01

DATE INSTALLED 05/21/97 AND 05/22/97

Construction Notes:
6" DIA PVC SURFACE CASING FROM 0'-45'
WELL CONSTRUCTED OF STAINLESS STEEL SCREEN AND RISER.

Remarks:

SECTION VIEW

NOTE:
1.) ALL DEPTHS AND ELEVATIONS ARE IN FEET.
2.) ELEVATIONS REFERENCED TO PROJECT BENCHMARK.

G&E ENGINEERING
A Division of Tetra Tech - CRA Company
ENVIRONMENTAL CONSULTANTS

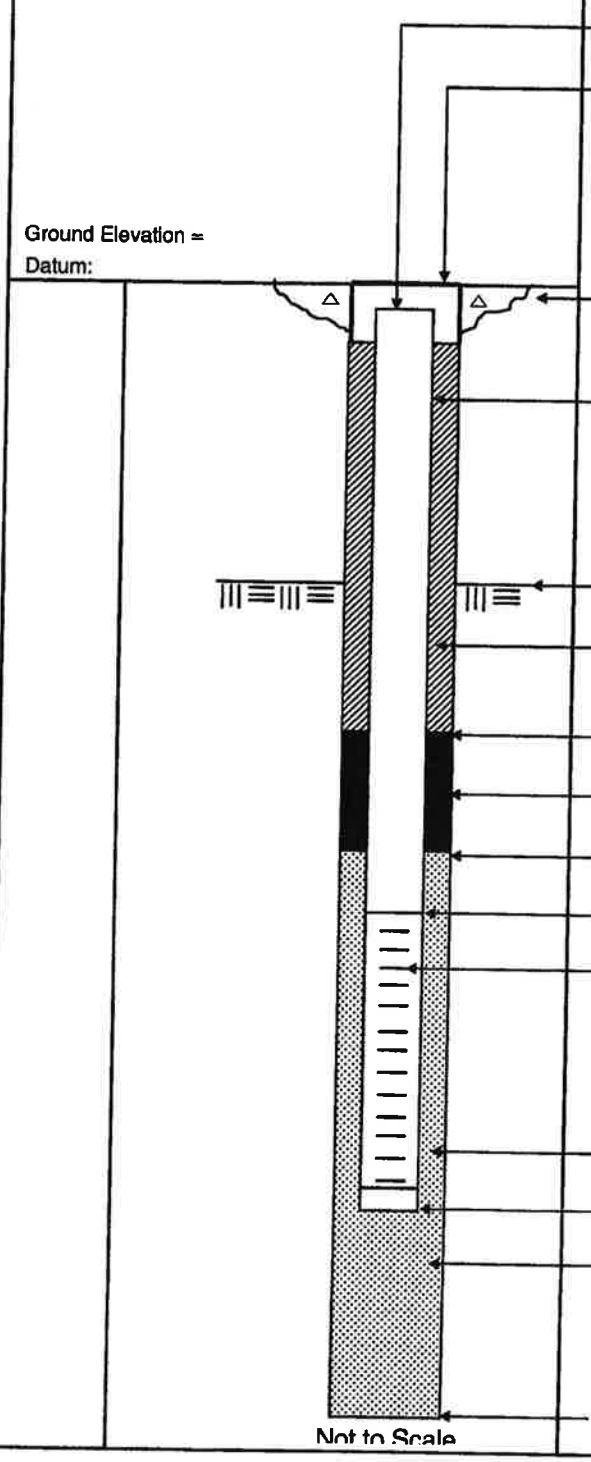
12/9/97 Date	Rev. No.	6E-2778-A6 Drawing No.	NASA KENNEDY SPACE CENTER, FLORIDA Client	LAUNCH COMPLEX 34 CAPE CANAVERAL AIR STATION, FLORIDA Project Location	MONITOR WELL CROSS-SECTION	Fig No.
MKL Drawn by	Checked By	Approved By				

Tetra Tech NUS, Inc.

WELL No.: IW-67D

MONITORING WELL SHEET

PROJECT:	CMS	DRILLING Co.:	DirecTec	BORING No.:	0006
PROJECT No.:	MD N~~7675~~ 1130	DRILLER:	R. Bermudez ~~G. Rezzano~~	DATE COMPLETED:	5/16/05
SITE:	LC 34, CCAFS	DRILLING METHOD:	DPT	NORTHING:	463737.06
GEOLOGIST:	Merv Dale	DEV. METHOD:	Peristaltic Pump	EASTING:	242827.42



Elevation / Depth of Top of Riser: 13 INCH

Elevation / Height of Top of Surface Casing: 11 INCH

I.D. of Surface Casing: 6 INCH

Type of Surface Casing: Steel boltdown manhole

Type of Surface Seal: Concrete
2 ft x 2 ft x 6 inch pad

I.D. of Riser: 3/4 inch

Type of Riser: Sch. 40 PVC

Borehole Diameter: 2 1/8 INCH

Elevation / Depth Top of Rock: N/A

Type of Backfill: Type I Portland cement

Elevation / Depth of Seal: N/A

Type of Seal: N/A

Elevation / Depth of Top of Filter Pack: 138 FT.

Elevation / Depth of Top of Screen: 138 FT.

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010 inch x 5 FT.

I.D. of Screen: 3/4 inch

Type of Filter Pack: 20/40 Filter Sand

Elevation / Depth of Bottom of Screen: 143 FT.

Elevation / Depth of Bottom of Filter Pack: 143 FT.

Type of Backfill Below Well: NATURAL GROUND

Elevation / Total Depth of Borehole: 143 FT.

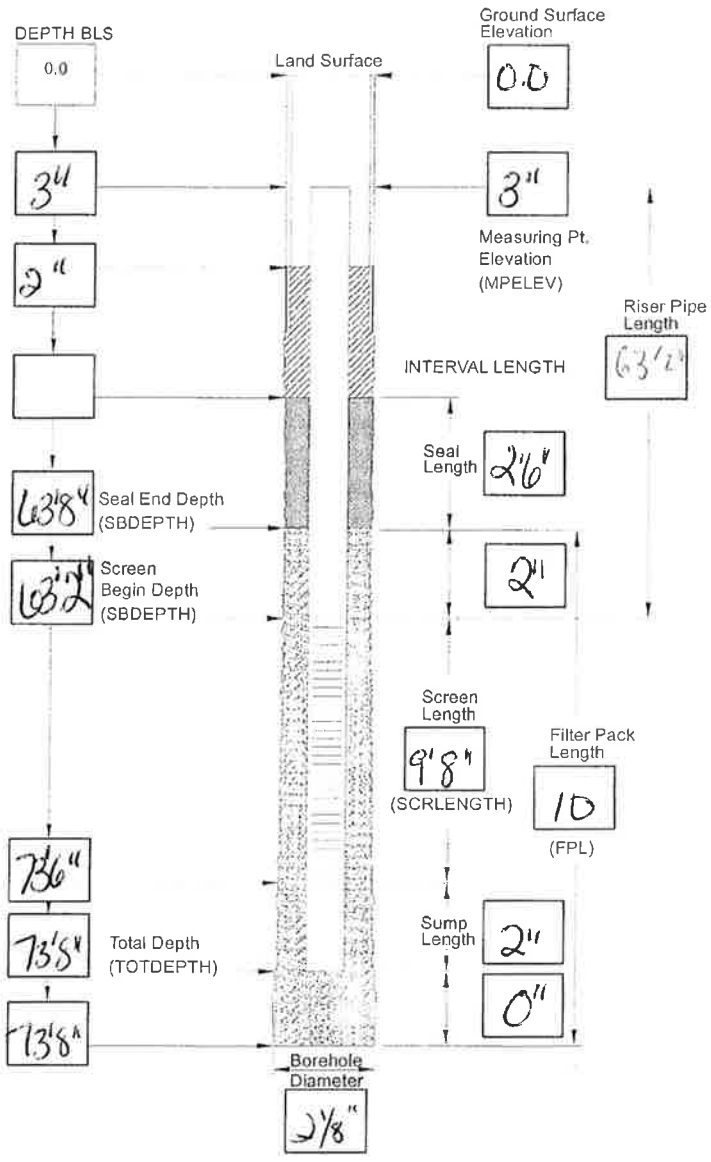
PROJECT # FO0552

FORM C
Fieldbook _____

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D. (LOCID): IW-67-D1
Drilling Company: DirecTec, LLC
Drillers: David Webb and Rueben Bermudez
Geologist/Engineer: Melissa Hensley Dave Sizemore
Signature: Melissa Hensley

Site: LC 34
Installation Method: Direct Push 2" Dia Dutch Cone
Casing Installation Date (INSDATE): 11/10/04
Well Type (WTCCODE): Monitoring
Well Completion Method (WCMCODE): Flush
Geologic Completion Zone (GZCODE): _____



Well Completion
Guard Posts (Y / N) Date: 11/10/04
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 8"/Steel
Depth BGS: 6" Weep Hole (Y / N)
Grout
Composition/Proportions: 45 lbs Type II Portland Cement to 5 gallon H_2O
Placement Method: Tremied through borehole

Seal Date: 11/10/04
Type: Bentonite Pre-pack
Source: Bentonite Pre-pack
Set-up/Hydration Time: _____
Placement Method: Pre-pack
Vol. Fluid Added: N/A
Filter Pack
Type: Pre-pack
Source: Pre-pack
Amount Used: Pre-pack
Placement Method: Pre-pack
Well Riser Pipe
Casing Material (CMACODE): PVC
Casing Inside Diameters (CASDIAM): 3/4 nominal 7/8 outside casing diameter in.
Screen
Material: PVC
Inside Diameter (SCRDIAM): _____ in.
Screen Slot Size: (SOUA): 0.01 in.
Percent Open Area (PCTOPEN): _____
Sump or Bottom Cap (Y) N)
Type/Length: 2"
Backfill Plug (Y / N)
Material: _____
Placement Method: _____
Set-up/Hydration Time: _____
Total Water Volume During Construction
Introduced (Gal): 0 Recovered (Gal): 0
Reviewed
By: _____ Date: 11/15/04

Comments

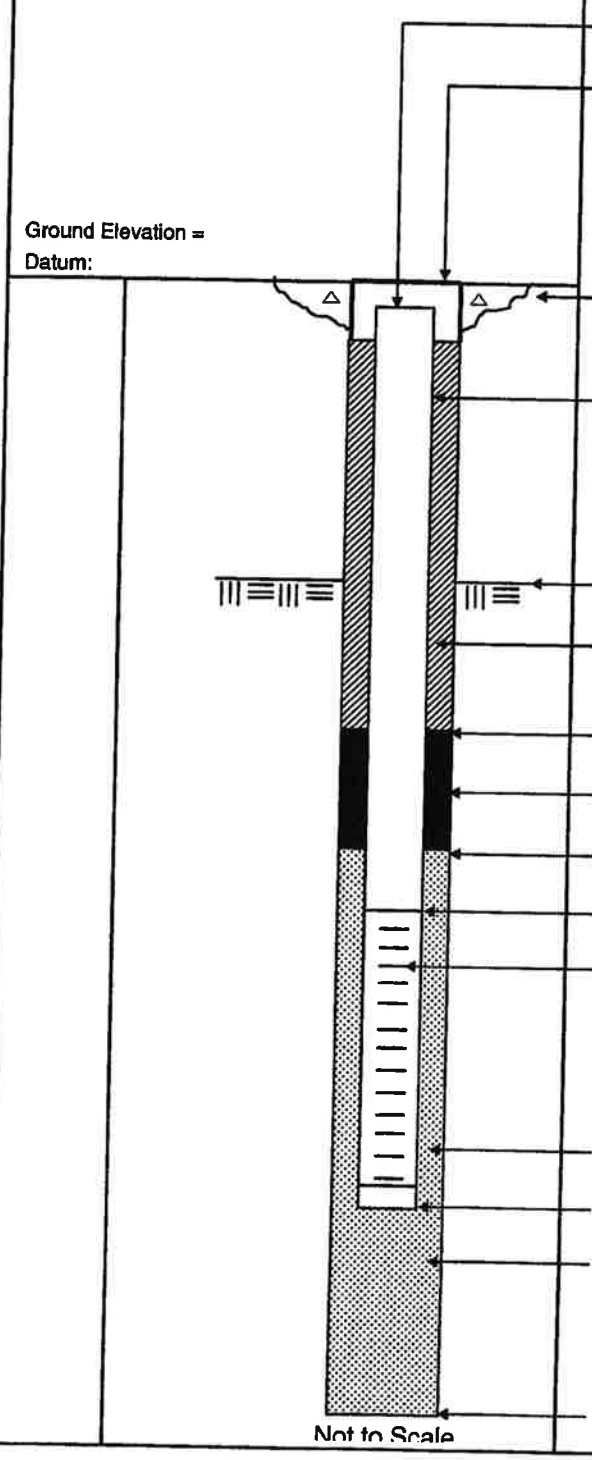
_____
_____
_____

Tetra Tech NUS, Inc.

WELL No.: IW-70D

MONITORING WELL SHEET

PROJECT:	CMS	DRILLING Co.:	DirecTec	BORING No.:	0004
PROJECT No.:	N7675 1130 MD	DRILLER:	R. Bermudez ~~G. Rozzano MD~~	DATE COMPLETED:	5/16/05
SITE:	LC 34, CCAFS	DRILLING METHOD:	DPT	NORTHING:	463761.64
GEOLOGIST:	Merv Dale	DEV. METHOD:	Peristaltic Pump	EASTING:	242940.52



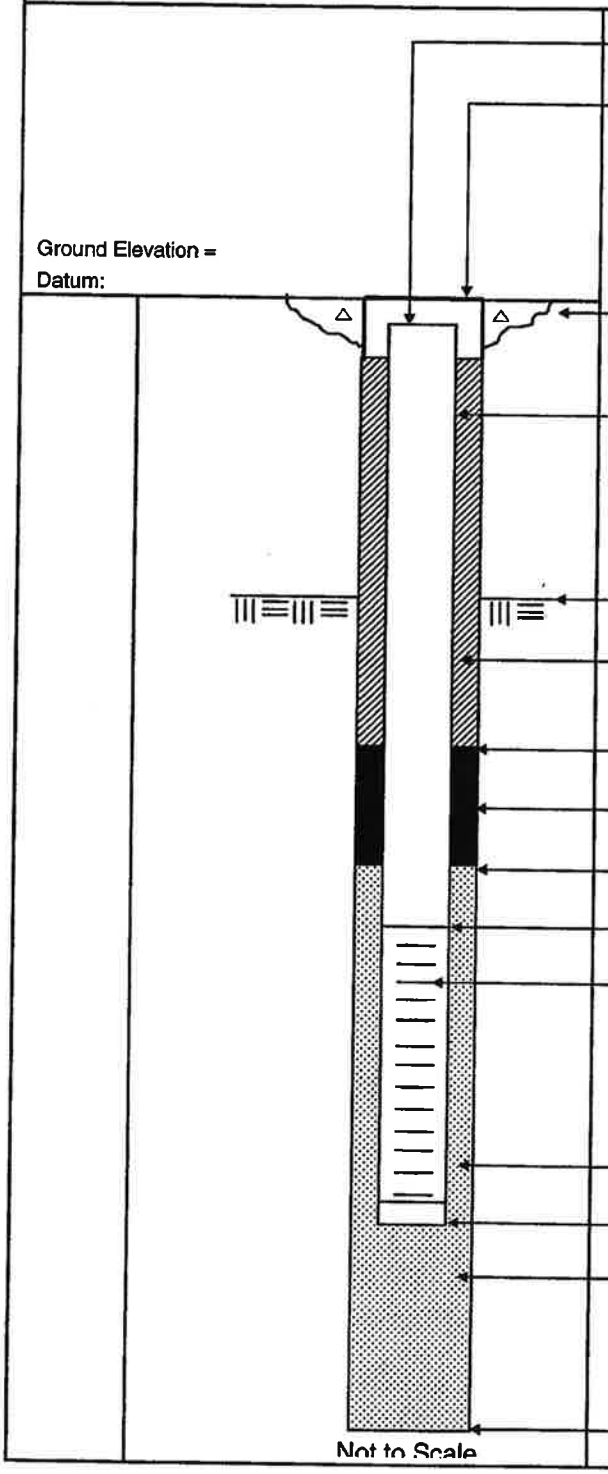
- Elevation / Depth of Top of Riser: 13 INCH
- Elevation / Height of Top of Surface Casing: 11 INCH
- I.D. of Surface Casing: 6 INCH
- Type of Surface Casing: Steel boltdown manhole
- Type of Surface Seal: Concrete 2 ft x 2 ft x 6 inch pad
- I.D. of Riser: 3/4 inch
- Type of Riser: Sch. 40 PVC
- Borehole Diameter: 2 1/8 INCH
- Elevation / Depth Top of Rock: N/A
- Type of Backfill: NATURAL GROUND
- Elevation / Depth of Seal: N/A
- Type of Seal: N/A
- Elevation / Depth of Top of Filter Pack: 138 FT.
- Elevation / Depth of Top of Screen: 138 FT.
- Type of Screen: Sch. 40 PVC
- Slot Size x Length: 0.010 inch x 5 FT.
- I.D. of Screen: 3/4 inch
- Type of Filter Pack: 20/40 Filter Sand
- Elevation / Depth of Bottom of Screen: 143 FT.
- Elevation / Depth of Bottom of Filter Pack: 143ft.
- Type of Backfill Below Well: NATURAL GROUND
- Elevation / Total Depth of Borehole: 143ft.

Tetra Tech NUS, Inc.

WELL No.: IW-7021

MONITORING WELL SHEET

PROJECT:	CMS	DRILLING Co.:	Preferred	BORING No.:	019
PROJECT No.:	N1130	DRILLER:	Jon K.	DATE COMPLETED:	06/27/05
SITE:	LC34, CCAFS	DRILLING METHOD:	DPT	NORTHING:	463756.64
GEOLOGIST:	Merv Dale	DEV. METHOD:	Peristaltic	EASTING:	242940.52



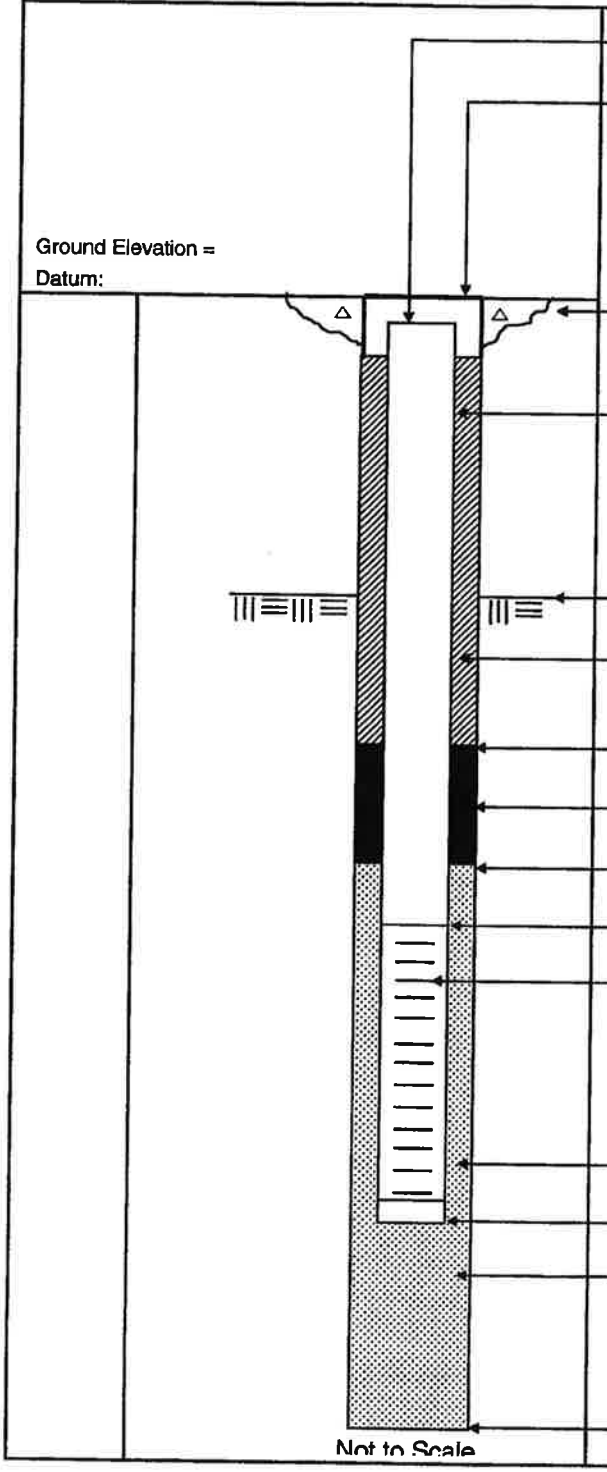
- Elevation / Depth of Top of Riser: 1 1 INCH
- Elevation / Height of Top of Surface Casing: 1 1 INCH
- I.D. of Surface Casing: 8 inches
- Type of Surface Casing: Steel boltdown manhole
- Type of Surface Seal: Concrete 2'x2'x6" PAD
- I.D. of Riser: 3/4 inch
- Type of Riser: Sch. 40 PVC
- Borehole Diameter: 2 1/8 inches
- Elevation / Depth Top of Rock: N/A
- Type of Backfill: Type I/II Portland cement
- Elevation / Depth of Seal: 160 FT.
- Type of Seal: NATIVE SOIL
- Elevation / Depth of Top of Filter Pack: 165FT.
- Elevation / Depth of Top of Screen: 165 FT.
- Type of Screen: Sch. 40 PVC
- Slot Size x Length: 0.010 inch x 10 ft.
- I.D. of Screen: 3/4 inch
- Type of Filter Pack: 30/45 GRADE SAND
- Elevation / Depth of Bottom of Screen: 175FT.
- Elevation / Depth of Bottom of Filter Pack: 175FT.
- Type of Backfill Below Well: NATIVE SOIL
- Elevation / Total Depth of Borehole: 175FT.

Tetra Tech NUS, Inc.

WELL No.: IW- 71D

MONITORING WELL SHEET

PROJECT:	CMS	DRILLING Co.:	Preferred	BORING No.:	022
PROJECT No.:	N1130	DRILLER:	JON K.	DATE COMPLETED:	06/28/05
SITE:	LC34, CCAFS	DRILLING METHOD:	DPT	NORTHING:	463668.84
GEOLOGIST:	Merv Dale	DEV. METHOD:	Peristaltic	EASTING:	242899.13



Elevation / Depth of Top of Riser: 1 1 INCH

Elevation / Height of Top of Surface Casing: 1 1 INCH

I.D. of Surface Casing: 8 INCHES

Type of Surface Casing: Steel boltdown manhole

Type of Surface Seal: Concrete 2'x2'x6" PAD

I.D. of Riser: 3/4 inch

Type of Riser: Sch. 40 PVC

Borehole Diameter: 2 1/8 INCHES

Elevation / Depth Top of Rock: N/A

Type of Backfill: Type I/II Portland Cement

Elevation / Depth of Seal: 33 mB 1 25 FT.

Type of Seal: NATIVE SOIL

Elevation / Depth of Top of Filter Pack: 1 38 FT.

Elevation / Depth of Top of Screen: 1 38 FT.

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010 inch x 5 ft.

I.D. of Screen: 3/4 inch

Type of Filter Pack: 30/45 Filter Sand

Elevation / Depth of Bottom of Screen: 1 43 FT.

Elevation / Depth of Bottom of Filter Pack: 1 43 FT.

Type of Backfill Below Well: NATIVE SOIL

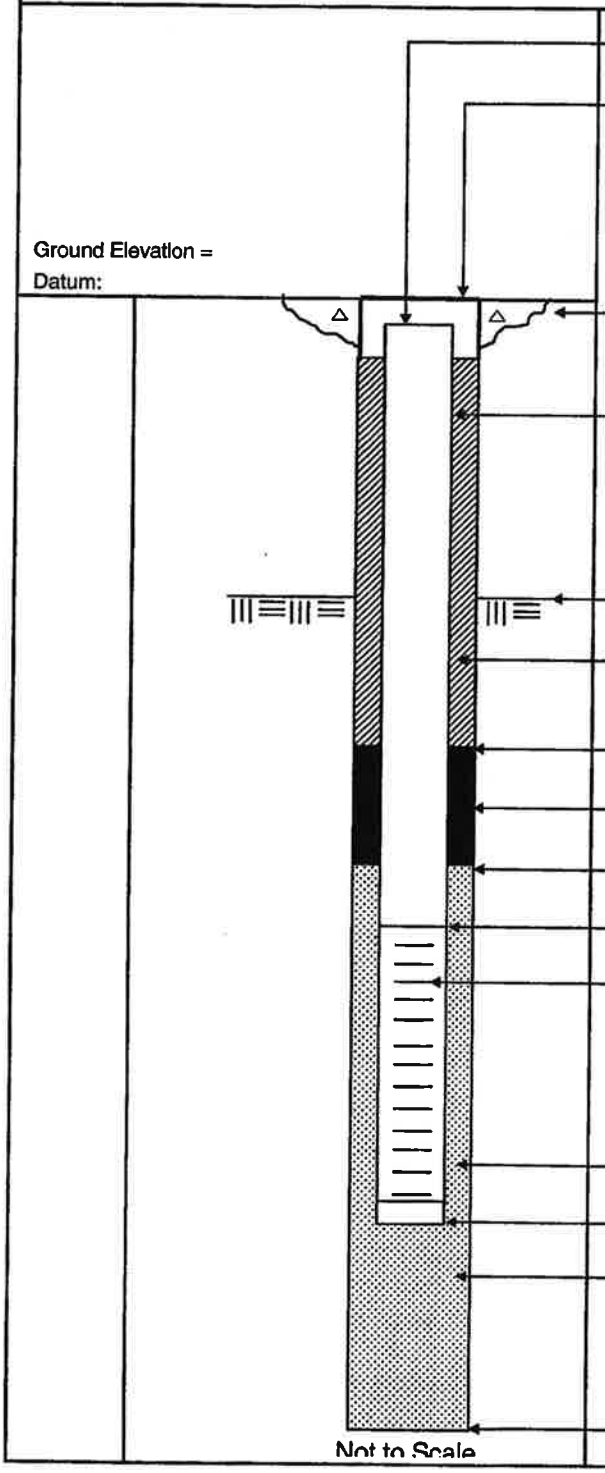
Elevation / Total Depth of Borehole: 1 43 FT.

Tetra Tech NUS, Inc.

WELL No.: IW- 71D1

MONITORING WELL SHEET

PROJECT:	CMS	DRILLING Co.:	Preferred	BORING No.:	021
PROJECT No.:	N1130	DRILLER:	JON K.	DATE COMPLETED:	06/28/05
SITE:	LC34, CCAFS	DRILLING METHOD:	DPT	NORTHING:	463663.84
GEOLOGIST:	Merv Dale	DEV. METHOD:	Peristaltic	EASTING:	242899.13



Elevation / Depth of Top of Riser: 1 1 INCH

Elevation / Height of Top of Surface Casing: 1 1 INCH

I.D. of Surface Casing: 8 INches

Type of Surface Casing: Steel boltdown manhole

Type of Surface Seal: Concrete 2'x2'x6" PAD

I.D. of Riser: 3/4 inch

Type of Riser: Sch. 40 PVC

Borehole Diameter: 2 1/8 INches

Elevation / Depth Top of Rock: N/A

Type of Backfill: Type I And II PORTLAND CEMENT

Elevation / Depth of Seal: 160 FT.

Type of Seal: NATIVE SOIL

Elevation / Depth of Top of Filter Pack: 165FT.

Elevation / Depth of Top of Screen: 165FT.

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010 inch x 10 ft.

I.D. of Screen: 3/4 inch

Type of Filter Pack: 30/45 GRADE Sand

Elevation / Depth of Bottom of Screen: 175FT.

Elevation / Depth of Bottom of Filter Pack: 175FT.

Type of Backfill Below Well: NATIVE SOIL

Elevation / Total Depth of Borehole: 175FT.

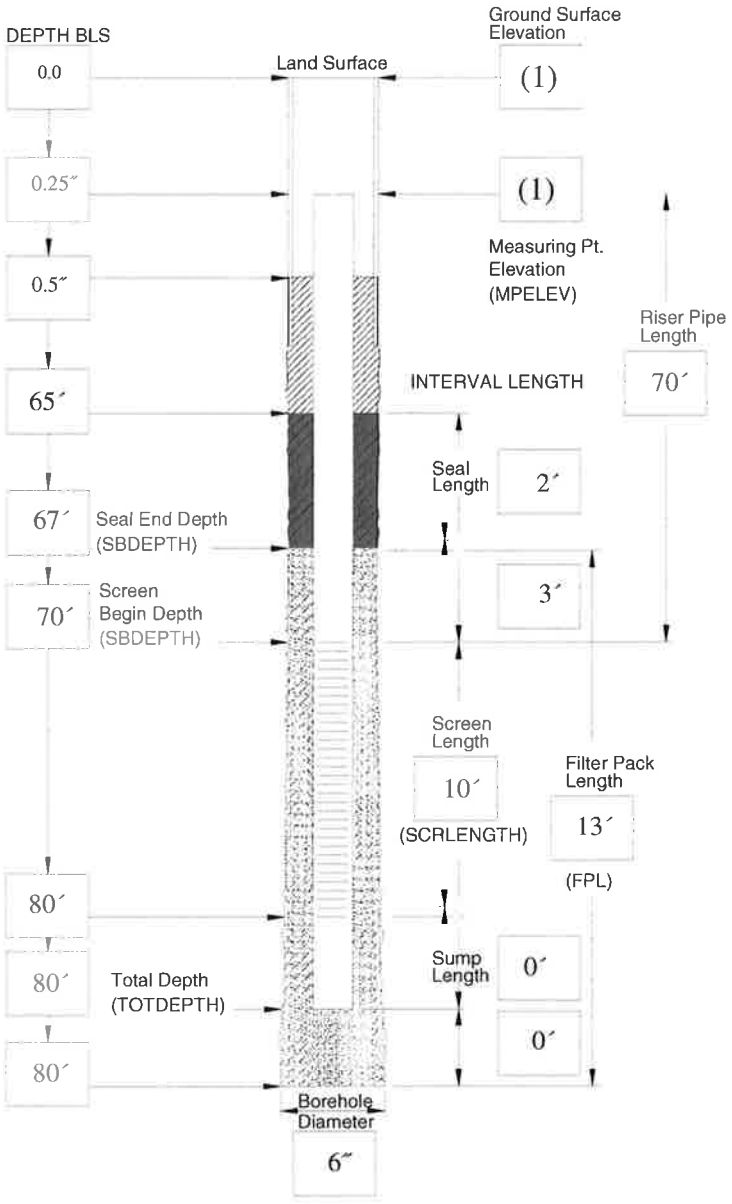
Geosyntec consultants

WELL CONSTRUCTION LOG
STANDARD FLUSH MOUNT

Well I.D.: IW0076

Drilling Company: Groundwater P rotectio n
Drillers: Scott/Bill Niles
Geologist/Engineer: R Daprato
Signature:

Site: LC34
Project Num ber: FO0552B
Installation Method: Sonic
Casing Installation Date: 7/16/2009
Well Type: Monitoring Well
Well Completion Method: Flush
Geologic Completion Zone : Surficial



Well Completion
Guard Posts (Y / (N)) Date : 7/16/2009
Surface Pad Size: 3 ft x 3 ft
Protective Casing or Cover
Diameter/Type: 8-inch manhole
Depth BGS: ~9" Weep Hole (Y / (N))
Grout
Composition/Proportions: Holcolm ASTM Type GU Portland Cement
Placement Method: Direct Pour

Seal Date: 07/16/2009
Type: sand 30/65
Source: Standard sand
Set-up/Hydration Time: N/A
Placement Method: Direct pour
Vol. Fluid Added: None
Filter Pack
Type : Standard sand 20/30
Source: standard sand
Amount Used: four- 50 lb bags
Placement Method : direct pour
Well Riser Pipe
Casing Material: PVC SCH 40
Casing Inside Diameters : 2 in .
Screen
Material : PVC SCH 40
Inside Diameter: 2 in.
Screen Slot Size: 0.010 in.
Percent Open Area:
Sump or Bottom Cap (Y / (N))
Type/Length: 10 ft
Backfill Plug (Y / (N))
Material:
Placement Method:
Set-up/Hydration Time:
Total Water Volume During Construction
Introduced (Gal): 0
Recovered (Gal): 6
Reviewed
By : Date :

Comments
(1) Not vet surveved

ATTACHMENT B-2

HYDRAULIC CONDUCTIVITY TEST RESULTS

ATTACHMENT B-2
SUMMARY OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

INTERMEDIATE		
Well ID (screen interval, ft BLS)		K-Value (ft/d)
IJ0017 (32-42)	1	8.7
	2	9.1
	3	9.1
	4	10.3
IJ0021 (32-42)	1	3.5
	2	4.3
	3	4.2
RW0007 (34-41)	1	4.9
	2	4.8
	3	*
Average		6.6

DEEP		
Well ID (screen interval, ft BLS)		K-Value (ft/d)
IJ0018 (47-57)	1	4.2
	2	4.6
	3	4.1
IJ0022 (47-57)	1	5.5
	2	5.5
	3	3.7
RW0008 (47-57)	1	*
	2	3.8
	3	*
	4	4.4
Average		4.5

* Data was poorly correlated (not log-linear)

Notes

ft BLS - feet below land surface
ft/d - feet per day
K - hydraulic conductivity

Typical K Values

- clean gravel 1.0 to 10^{2} cm/s (2,800 to 280,000 ft/d)
- clean sands 10^{-3} to 1.0 cm/s (2.8 to 2,800 ft/d)
- very fine sands, organic and inorganic silts, mixtures of sand, silt and clay, glacial till, stratified clay deposits, etc 10^{-7} to 10^{-3} cm/s ($2.8x10^{-4}$ to 2.8 ft/d)

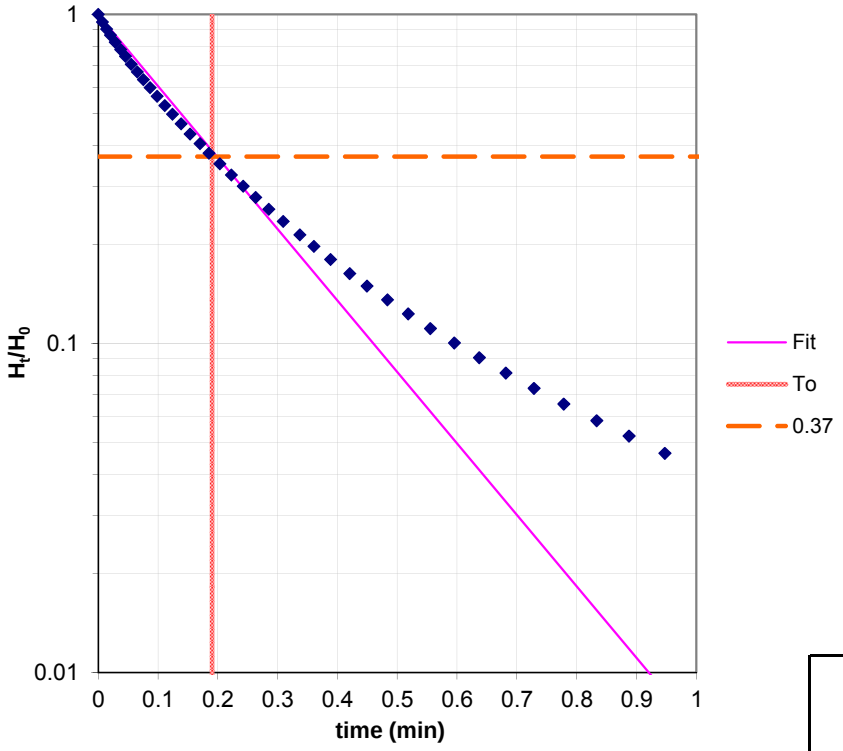
Source: *An Introduction to Geotechnical Engineering* Robert D. Holtz, William D. Kovacs, Prentice-Hall Inc, NJ 1981

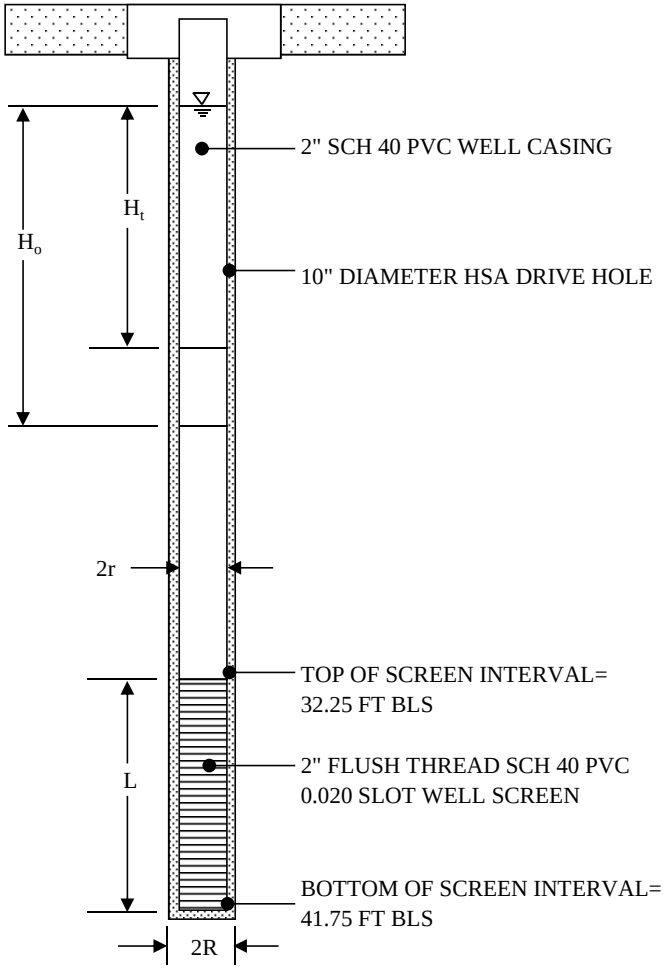
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	5.8128	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.19	
m =	-5	Slope of Fit Line

K (ft/day) = 8.7 Hydraulic Conductivity





IJ0017
(Test 1)

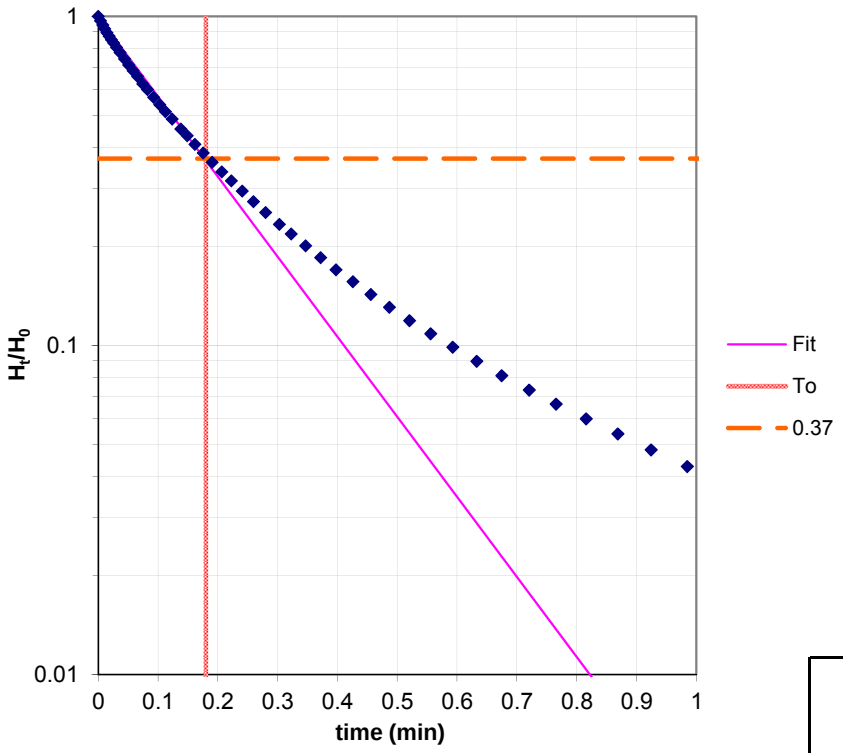
DATE 2/15/2011
PROJECT NO. ER-0716

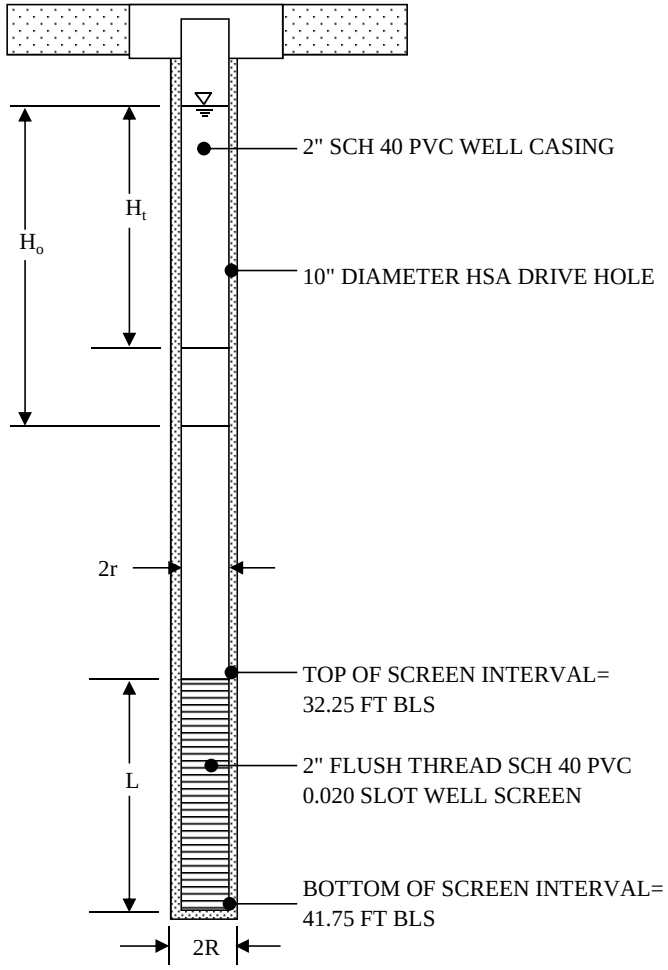
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	5.6974	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.18	
m =	-5.6	Slope of Fit Line

K (ft/day) = 9.1 Hydraulic Conductivity





IJ0017
(Test 2)

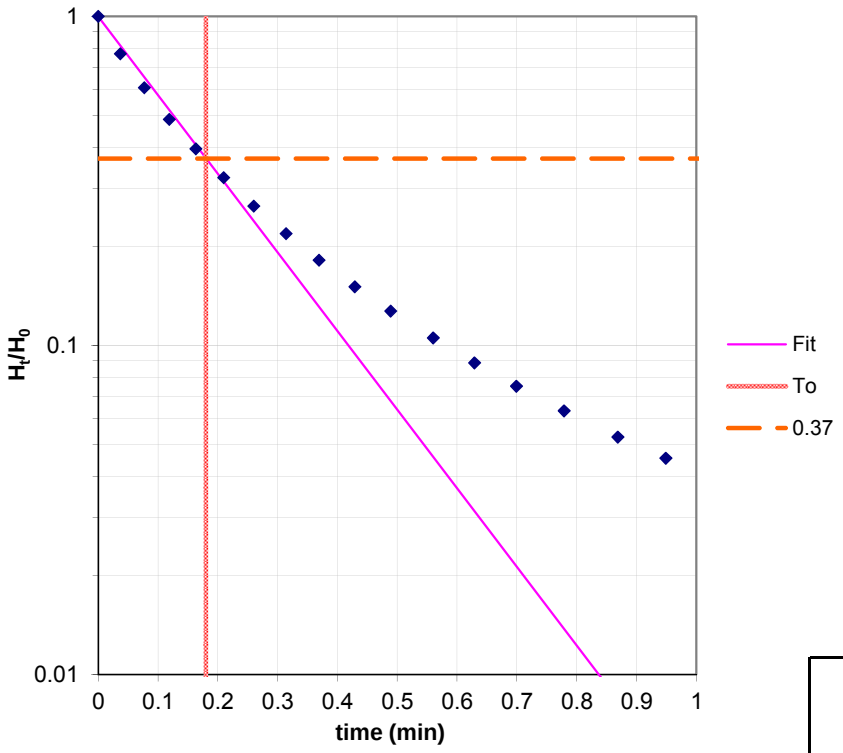
DATE 2/15/2011
PROJECT NO. ER-0716

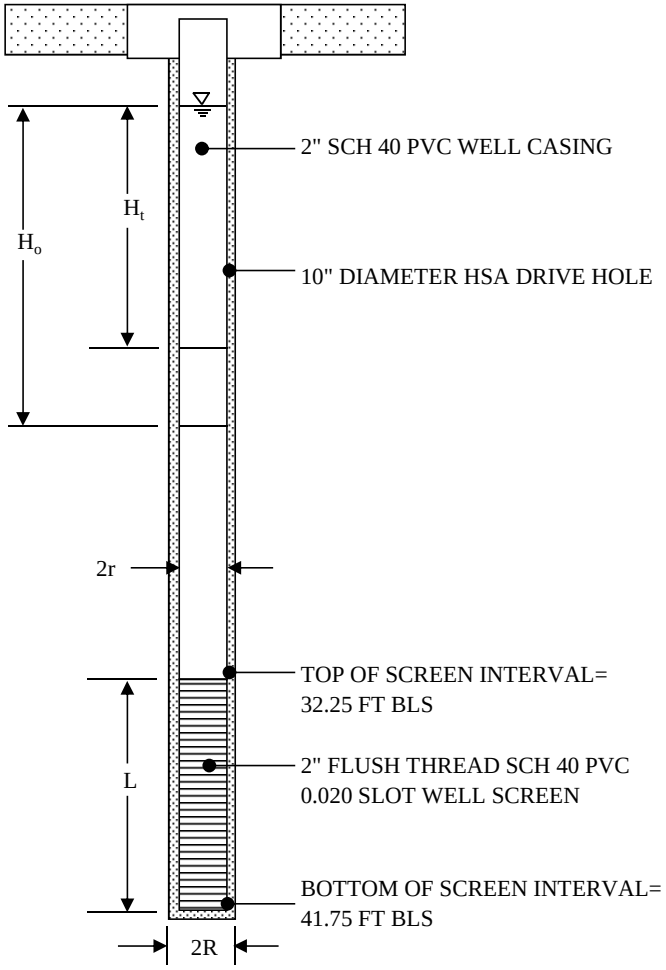
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	4.1128	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.18	
m =	-5.5	Slope of Fit Line

K (ft/day) = 9.1 Hydraulic Conductivity





IJ0017
(Test 3)

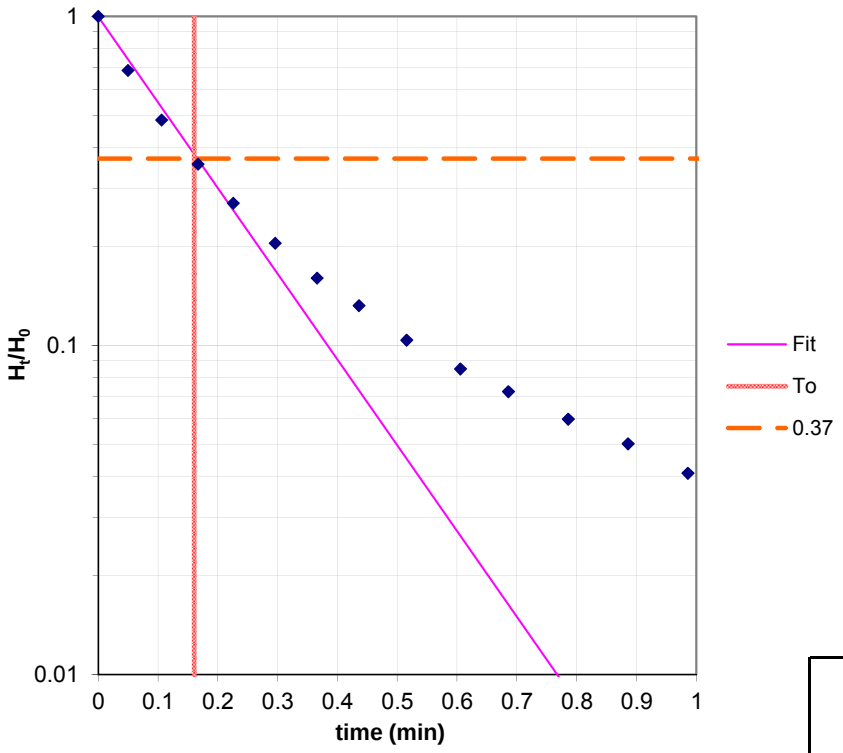
DATE 2/15/2011
PROJECT NO. ER-0716

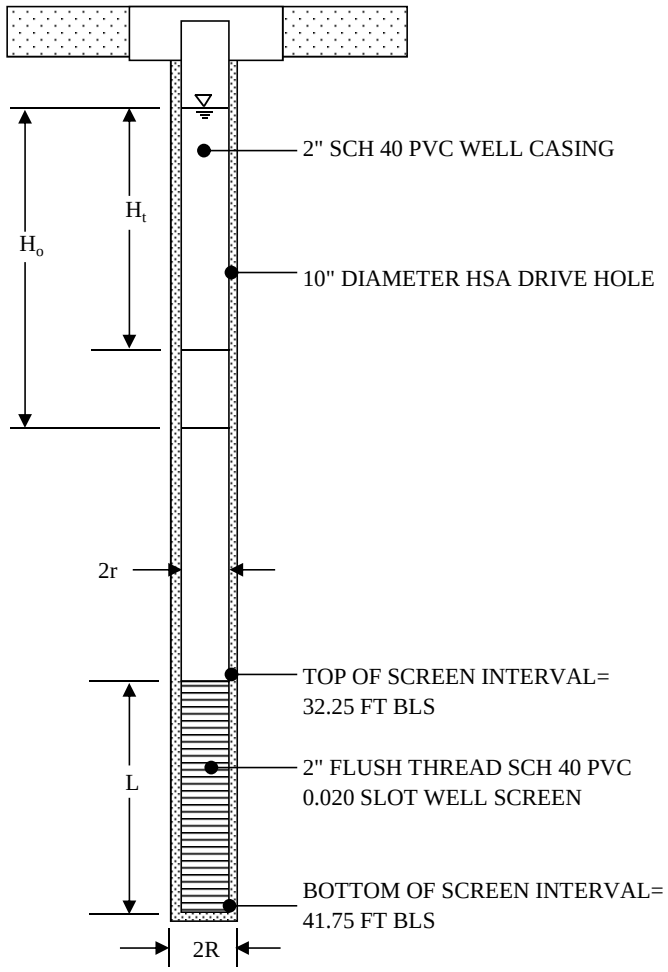
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.7335	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.16	
m =	-6	Slope of Fit Line

K (ft/day) = 10.3 Hydraulic Conductivity





IJ0017
(Test 4)

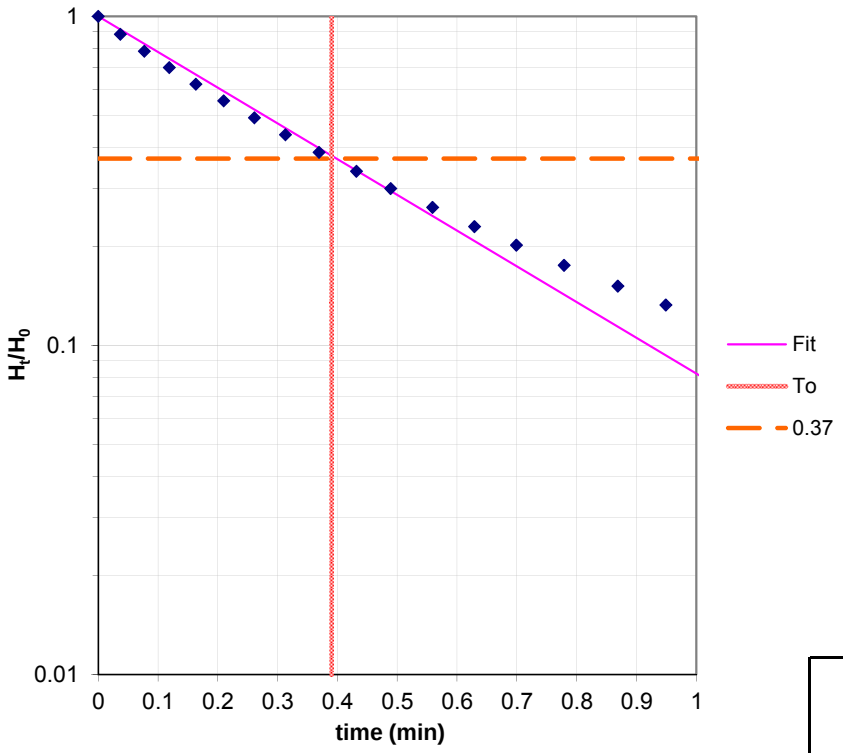
DATE 2/15/2011
PROJECT NO. ER-0716

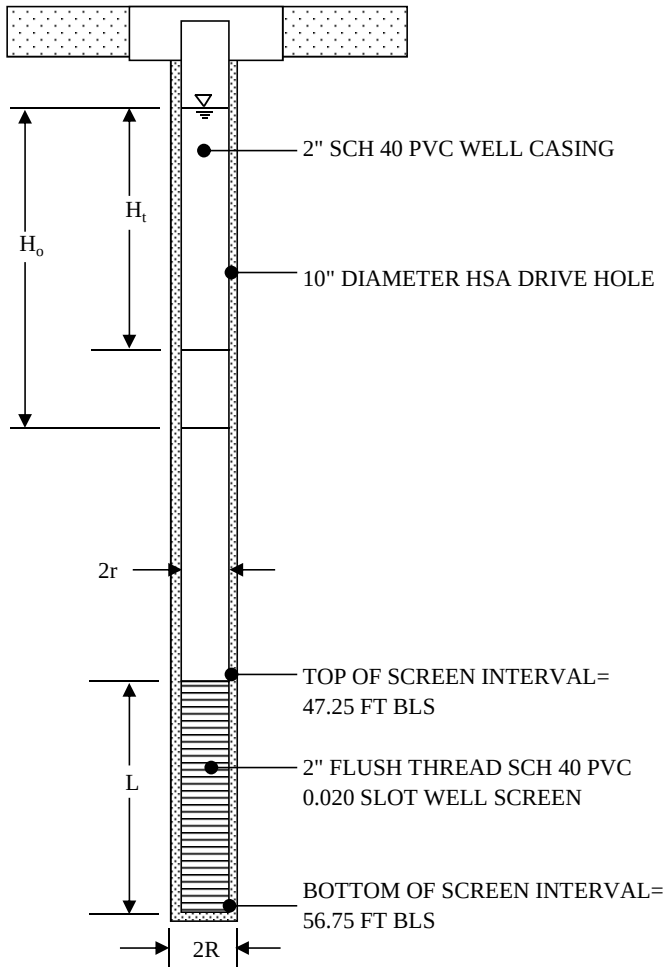
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	1.7369	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.39	
m =	-2.5	Slope of Fit Line

K (ft/day) = 4.2 Hydraulic Conductivity





IJ0018
(Test 1)

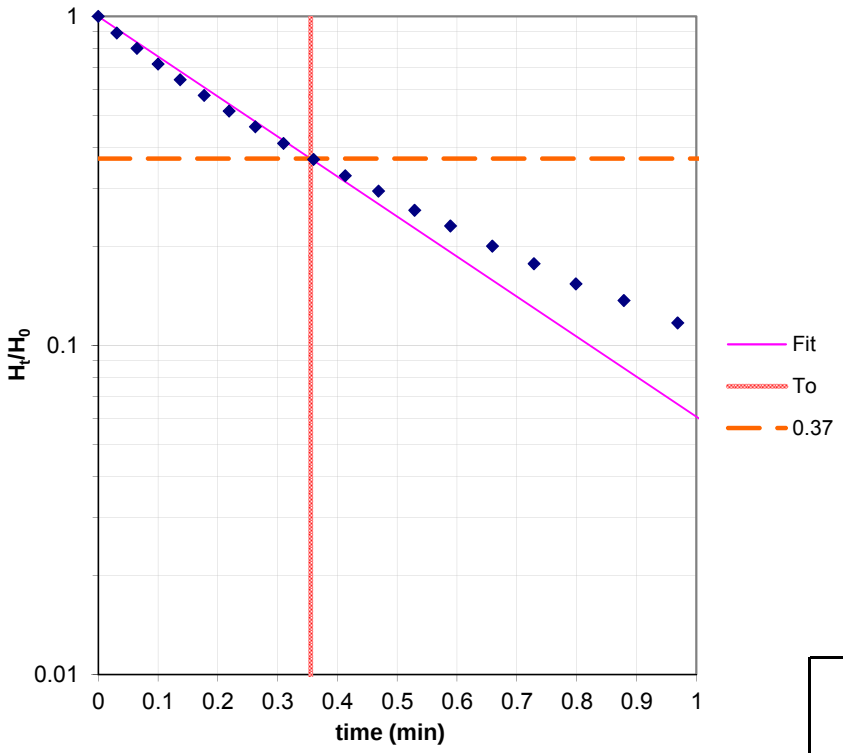
DATE 2/15/2011
PROJECT NO. ER-0716

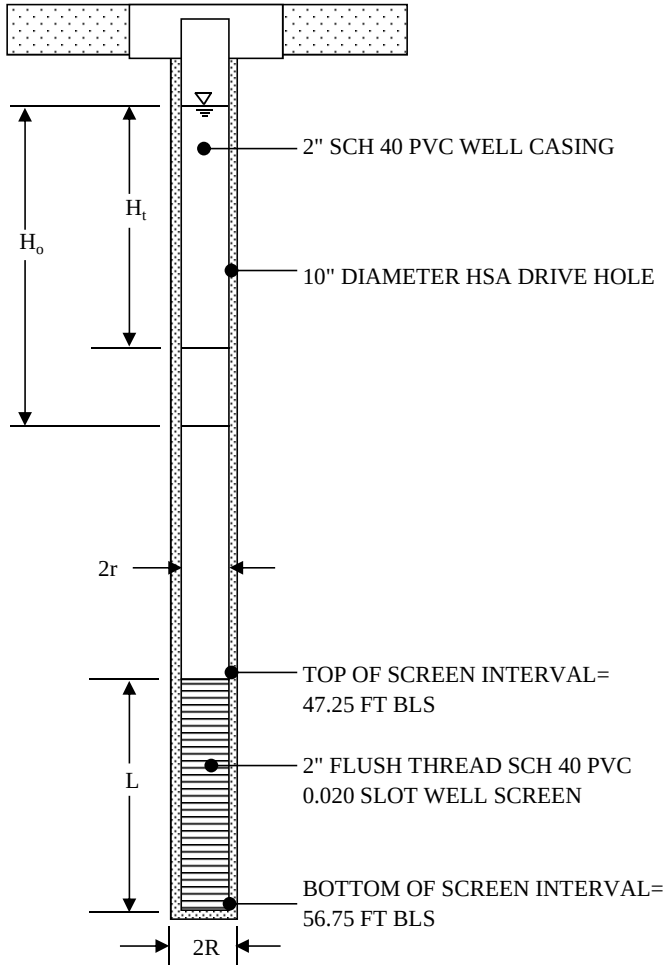
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.6897	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.355	
m =	-2.8	Slope of Fit Line

K (ft/day) = 4.6 Hydraulic Conductivity





IJ0018
(Test 2)

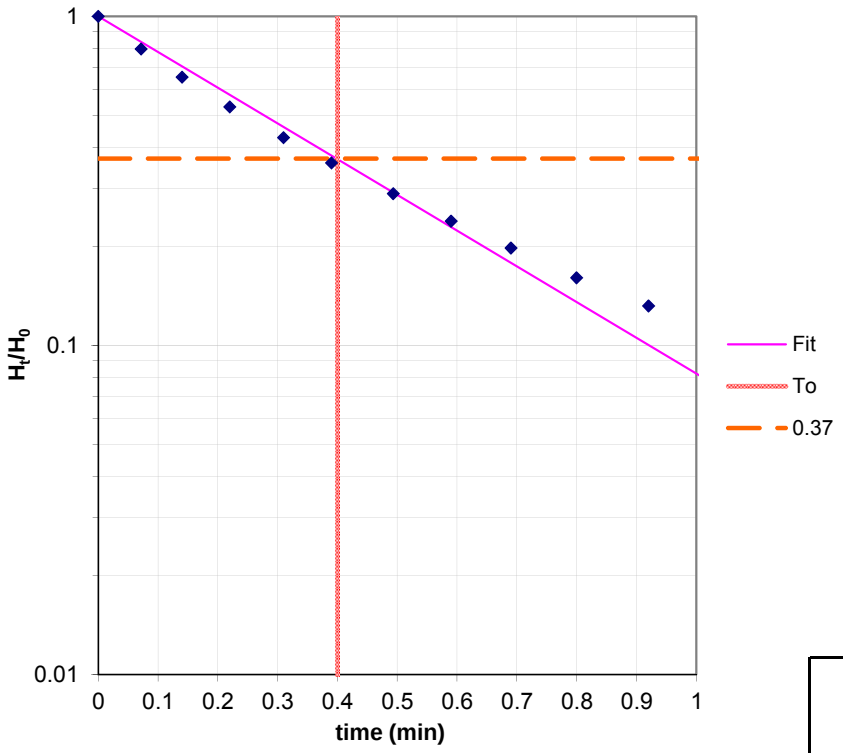
DATE 2/15/2011
PROJECT NO. ER-0716

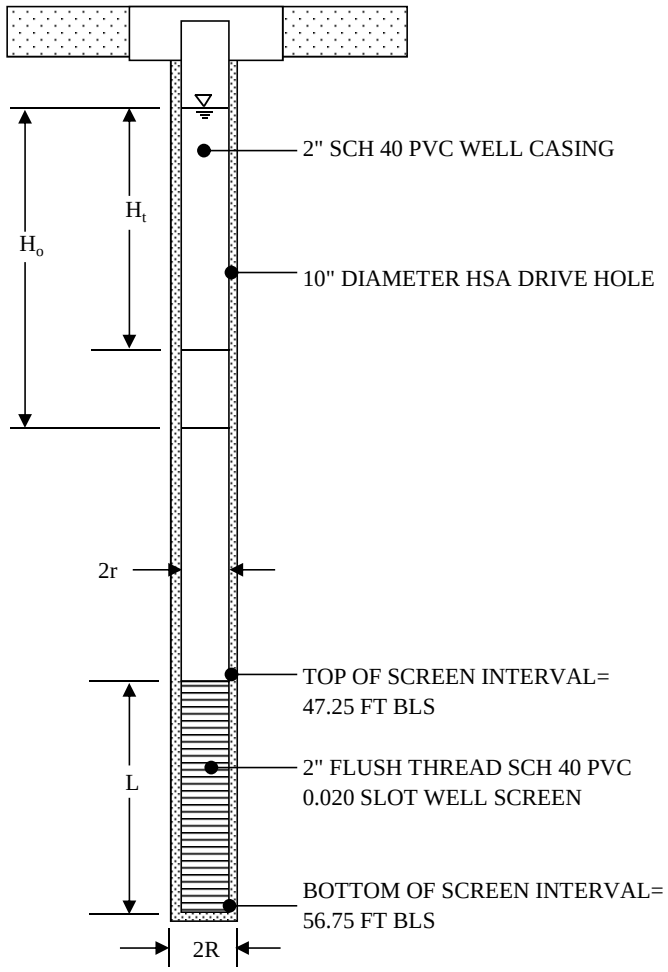
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	1.3632	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.4	
m =	-2.5	Slope of Fit Line

K (ft/day) = 4.1 Hydraulic Conductivity





IJ0018
(Test 3)

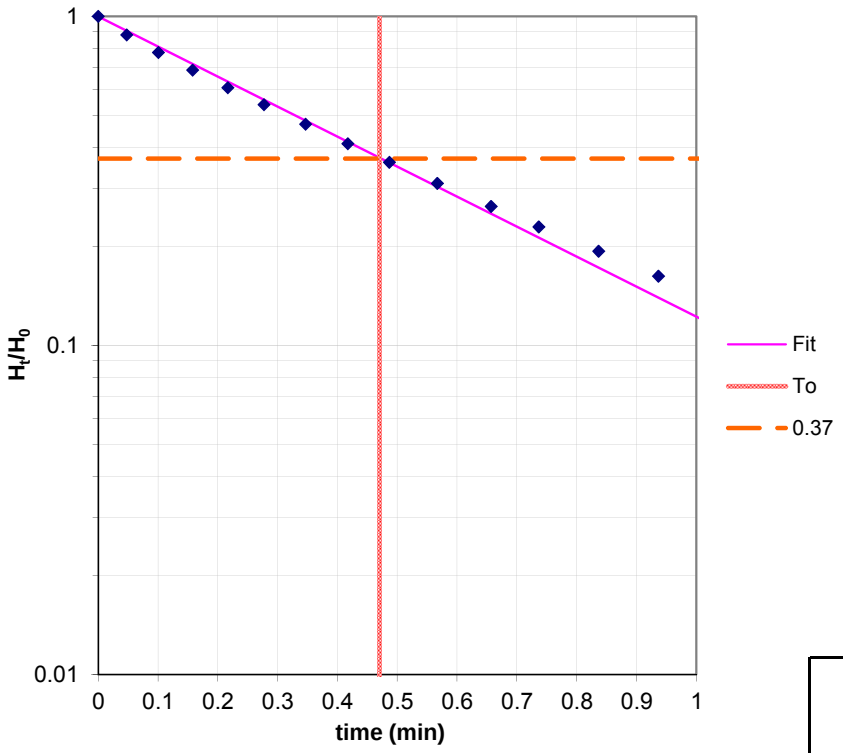
DATE 2/15/2011
PROJECT NO. ER-0716

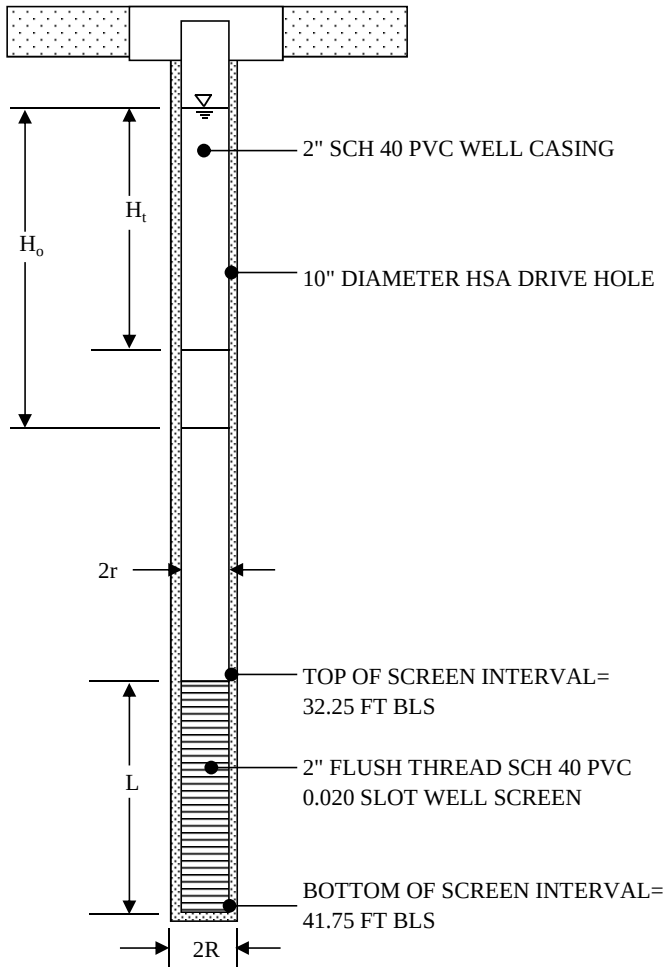
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	2.2421	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.47	
m =	-2.1	Slope of Fit Line

K (ft/day) = 3.5 Hydraulic Conductivity





IJ0021
(Test 1)

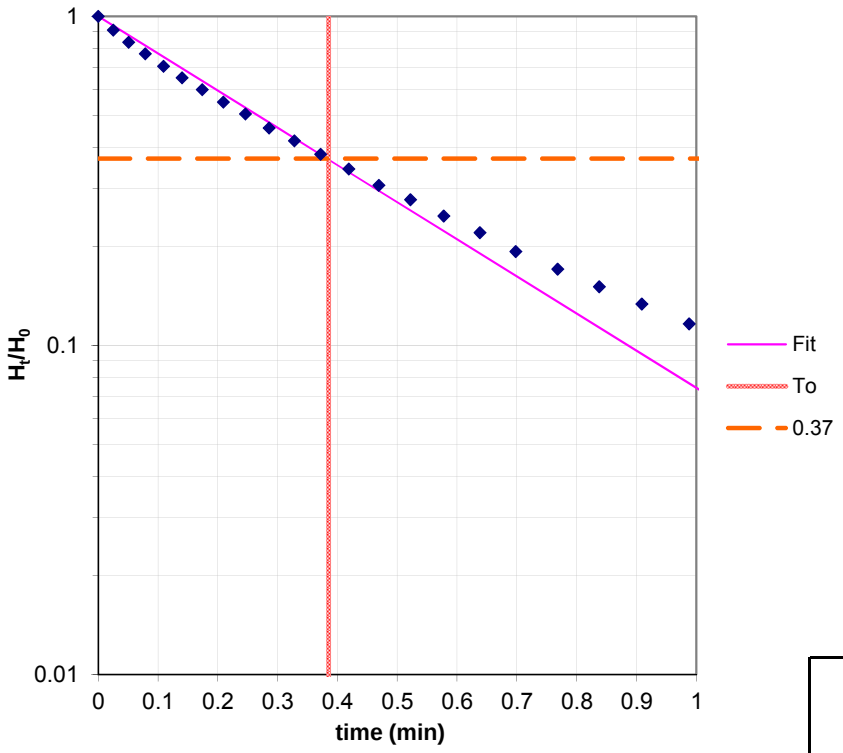
DATE 2/15/2011
PROJECT NO. ER-0716

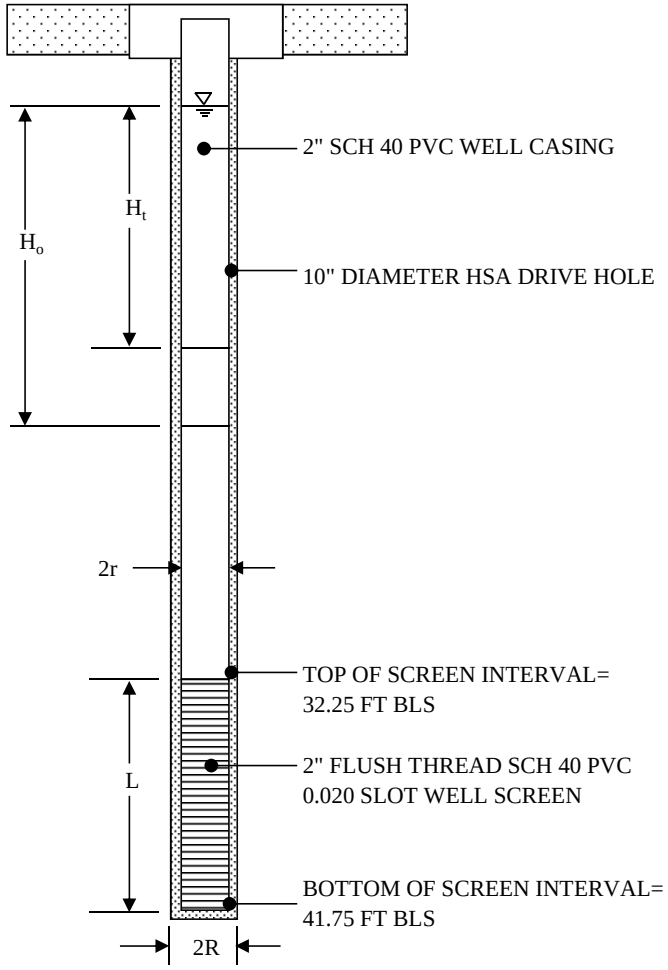
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.9319	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.385	
m =	-2.6	Slope of Fit Line

K (ft/day) = 4.3 Hydraulic Conductivity





IJ0021
(Test 2)

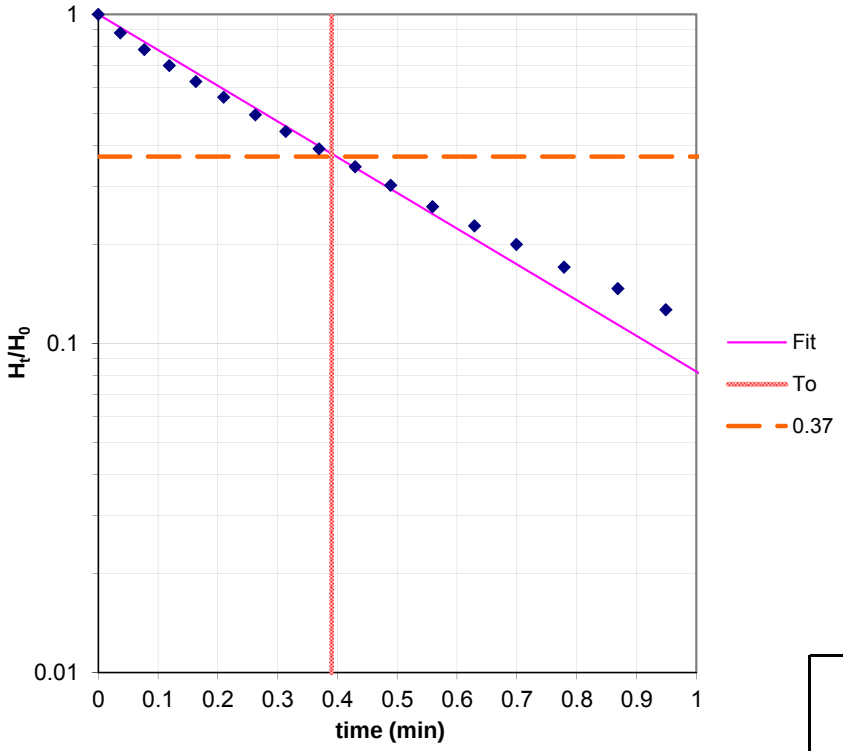
DATE 2/15/2011
PROJECT NO. ER-0716

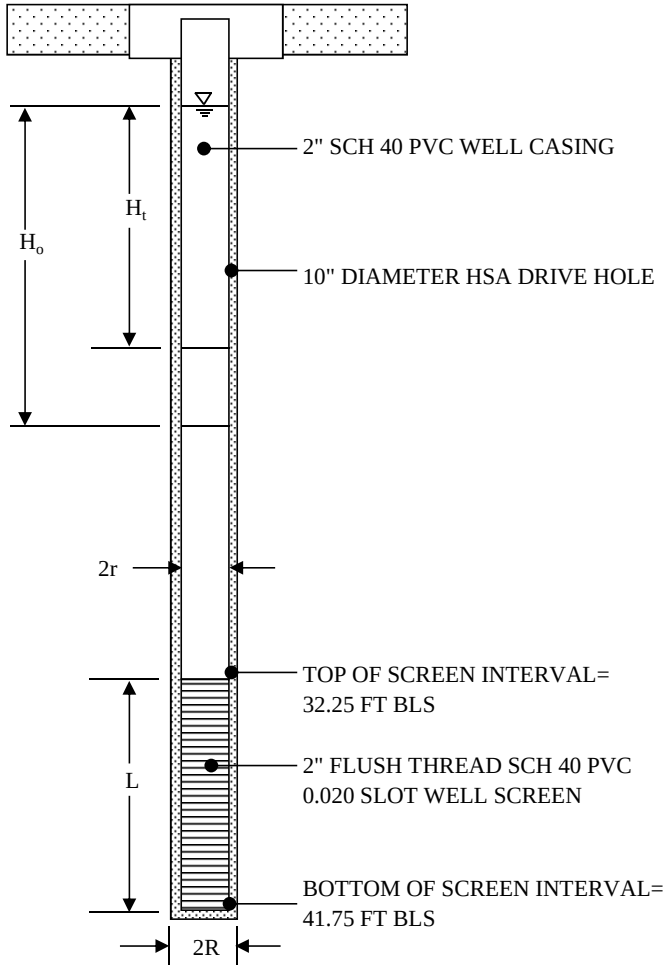
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	1.2571	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.39	
m =	-2.5	Slope of Fit Line

K (ft/day) = 4.2 Hydraulic Conductivity





IJ0021
(Test 3)

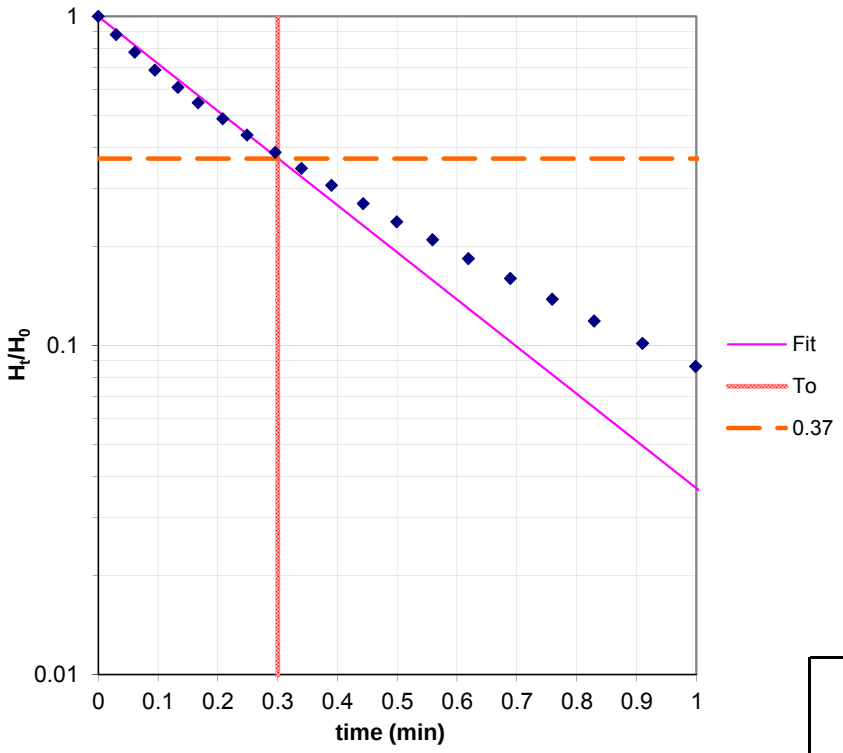
DATE 2/15/2011
PROJECT NO. ER-0716

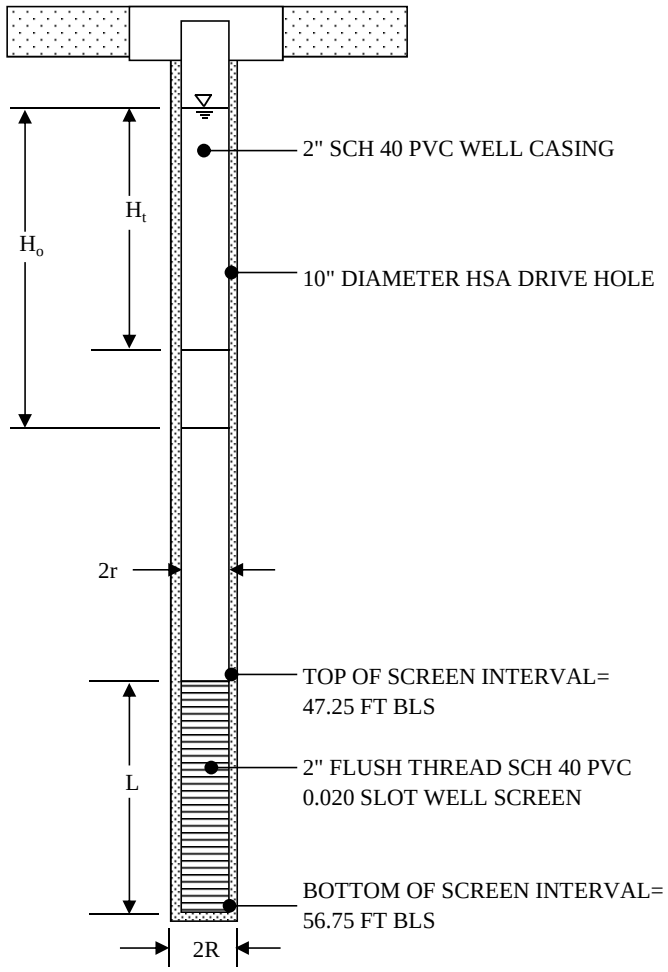
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	1.068	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.3	
m =	-3.3	Slope of Fit Line

K (ft/day) = 5.5 Hydraulic Conductivity





IJ0022
(Test 1)

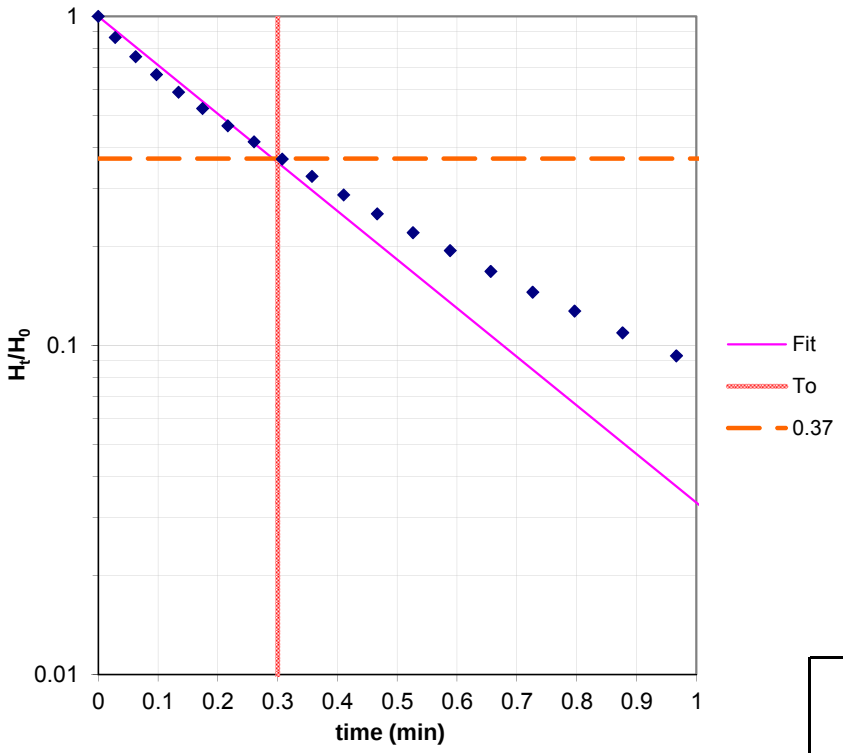
DATE 2/15/2011
PROJECT NO. ER-0716

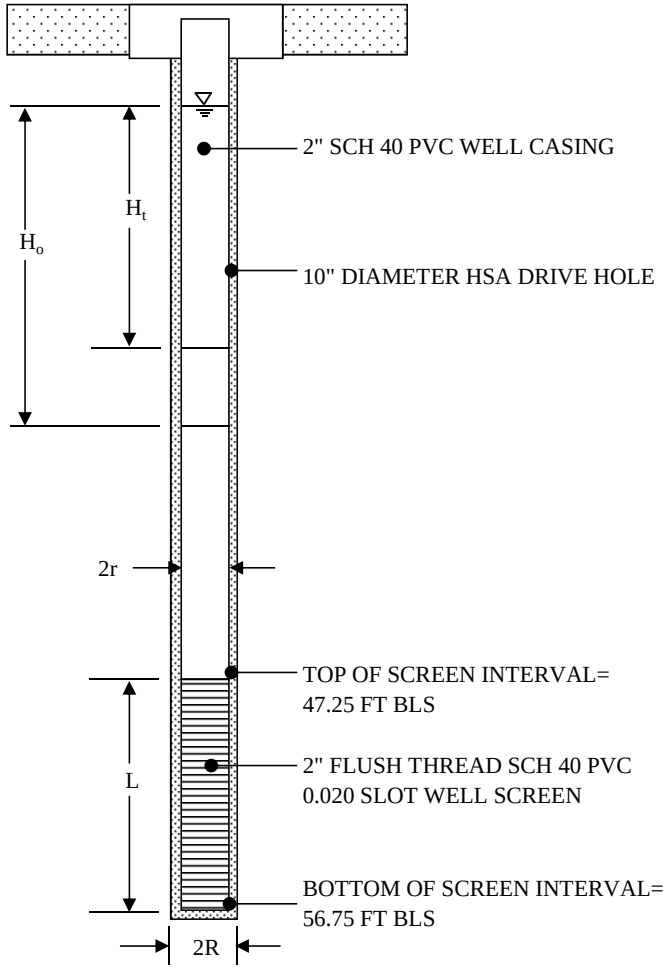
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	1.414	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	22.8	
T_0 (min) =	0.3	
m =	-3.4	Slope of Fit Line

K (ft/day) = 5.5 Hydraulic Conductivity





IJ0022
(Test 1)

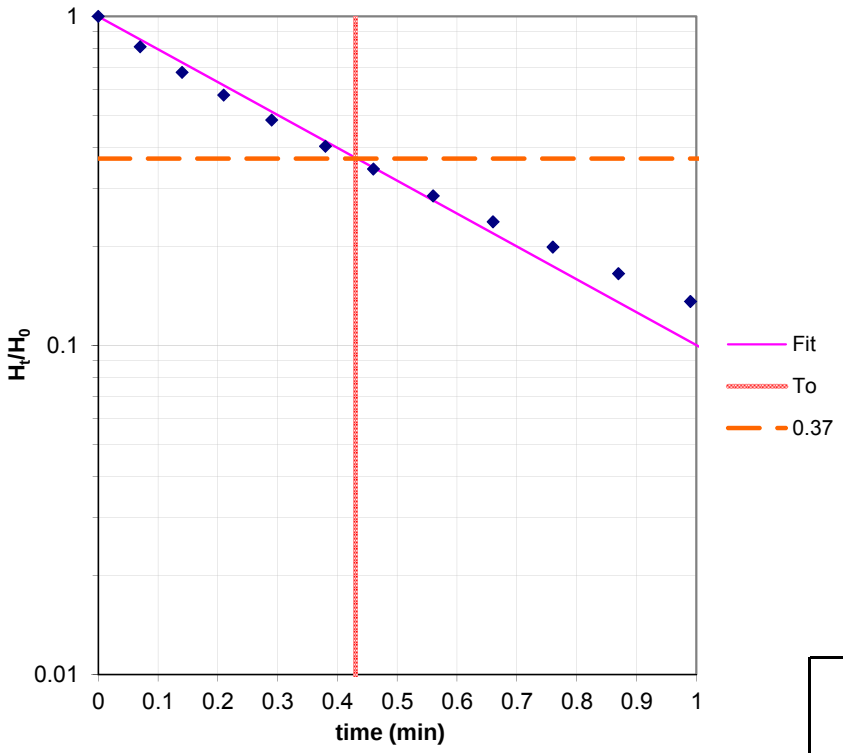
DATE 2/15/2011
PROJECT NO. ER-0716

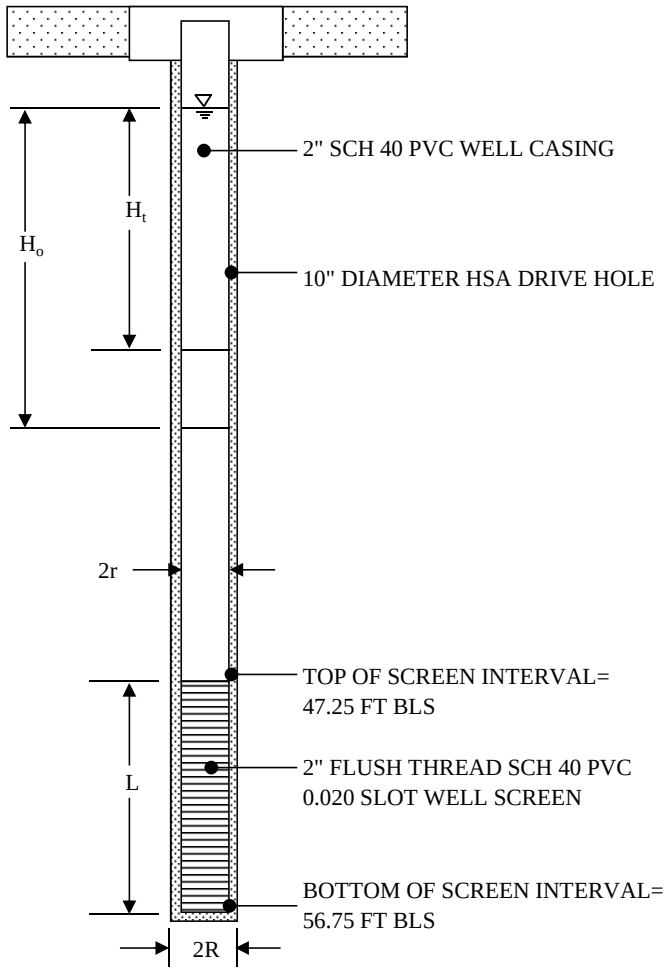
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	2.9318	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.083	Radius of the well casing
R (ft) =	0.417	Radius of the borehole
L (ft) =	10	Length of the screened interval
L/R =	24	
T_0 (min) =	0.43	
m =	-2.3	Slope of Fit Line

K (ft/day) = 3.7 Hydraulic Conductivity





IJ0022
(Test 3)

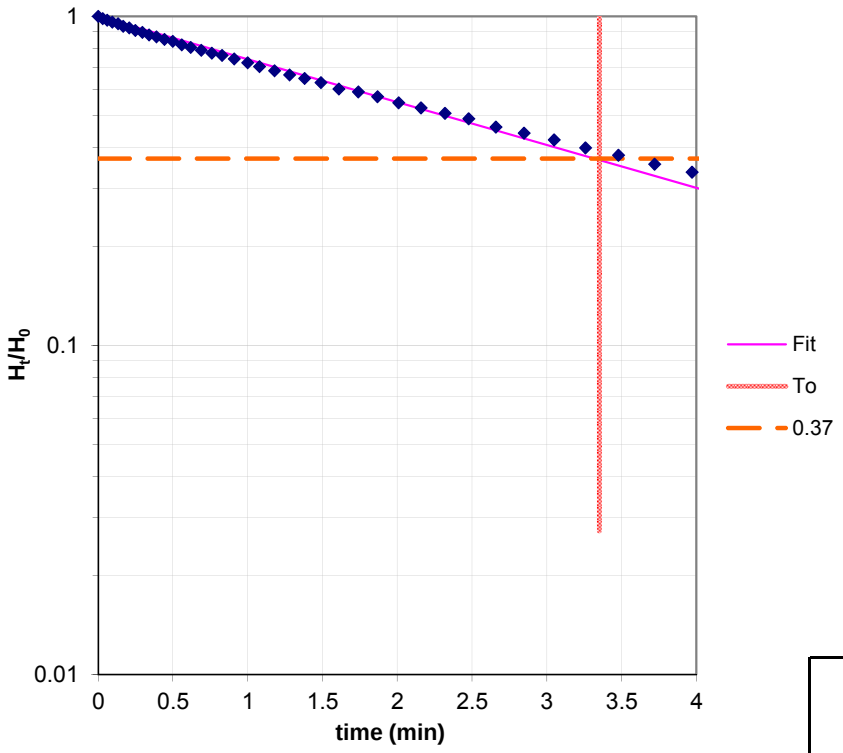
DATE 2/15/2011
PROJECT NO. ER-0716

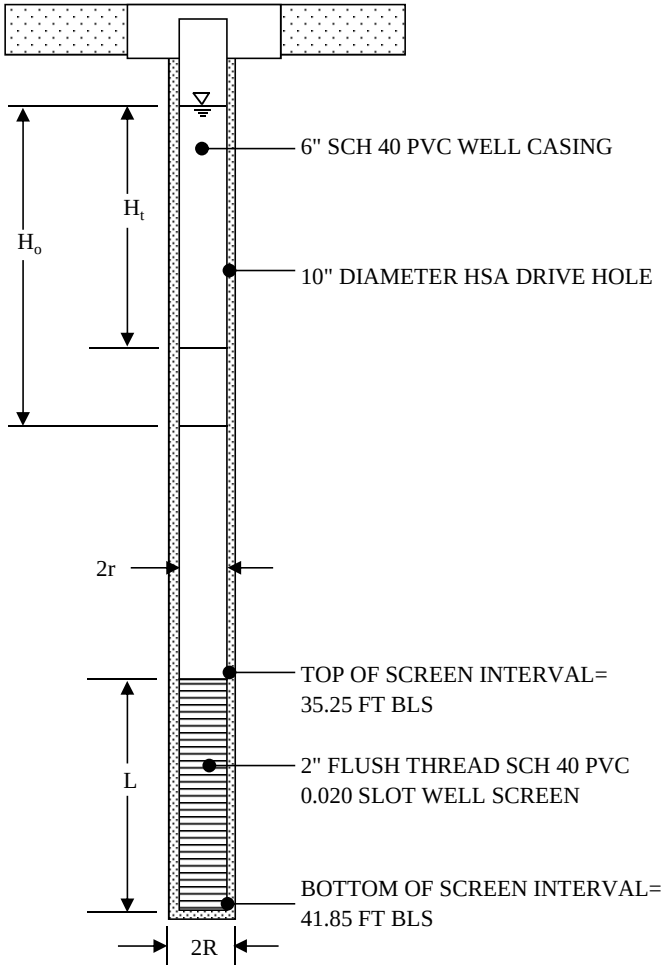
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.5905	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.250	Radius of the well casing
R (ft) =	0.583	Radius of the borehole
L (ft) =	6.6	Length of the screened interval
L/R =	11.314	
T_0 (min) =	3.35	
m =	-0.3	Slope of Fit Line

K (ft/day) = 4.9 Hydraulic Conductivity





RW0007
(Test 1)

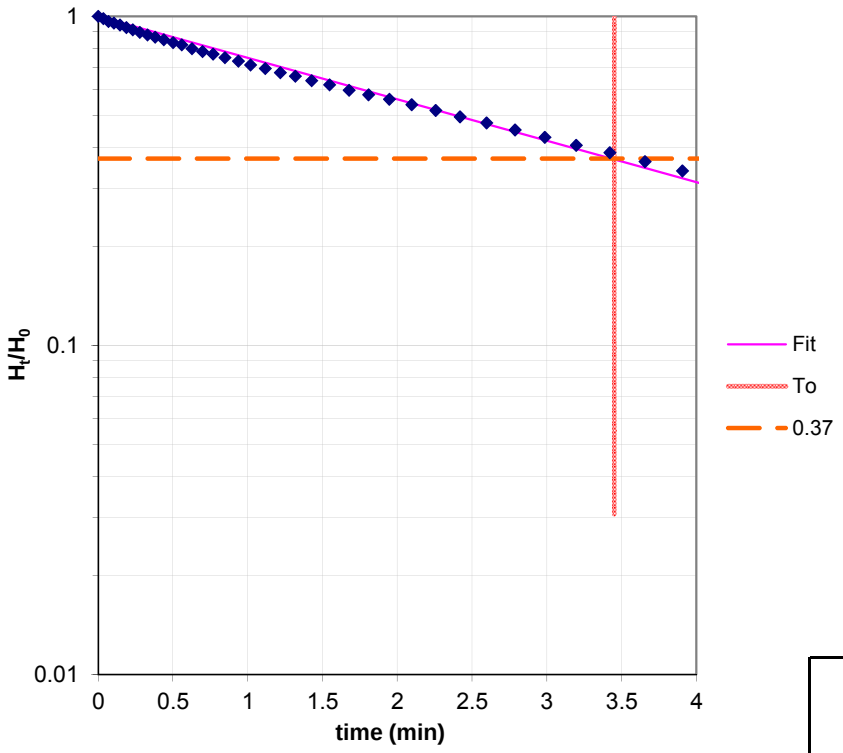
DATE 2/15/2011
PROJECT NO. ER-0716

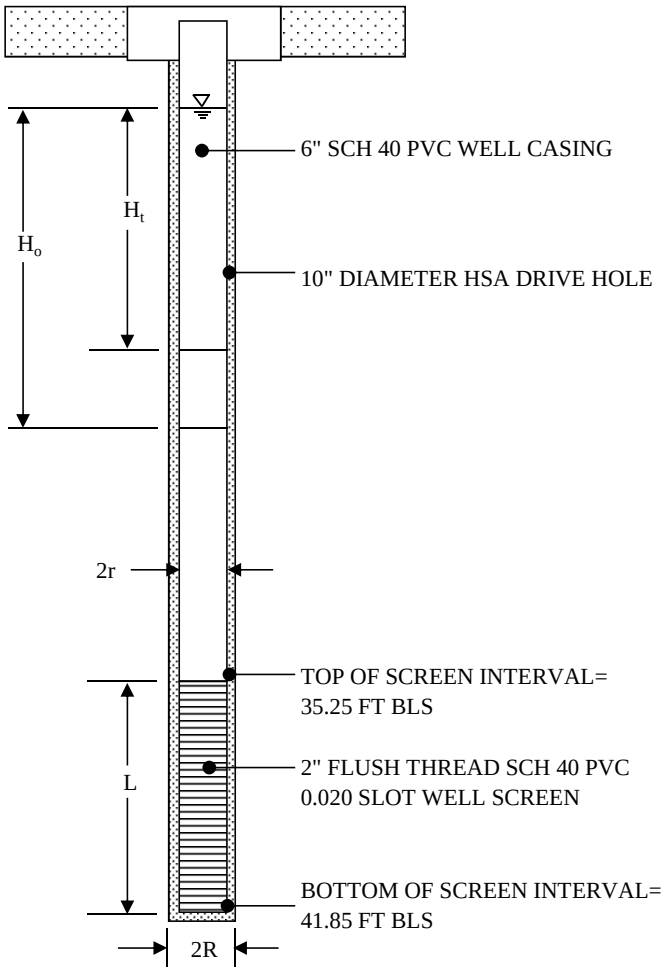
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	1.0057	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.250	Radius of the well casing
R (ft) =	0.583	Radius of the borehole
L (ft) =	6.6	Length of the screened interval
L/R =	11.314	
T_0 (min) =	3.45	
m =	-0.29	Slope of Fit Line

K (ft/day) = 4.8 Hydraulic Conductivity





RW0007
(Test 2)

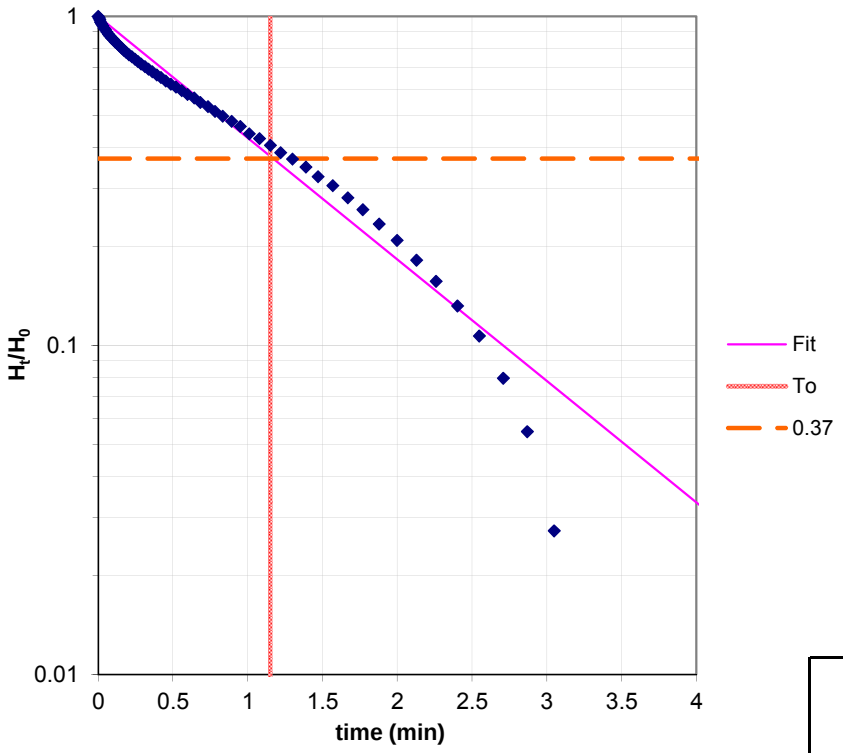
DATE 2/15/2011
PROJECT NO. ER-0716

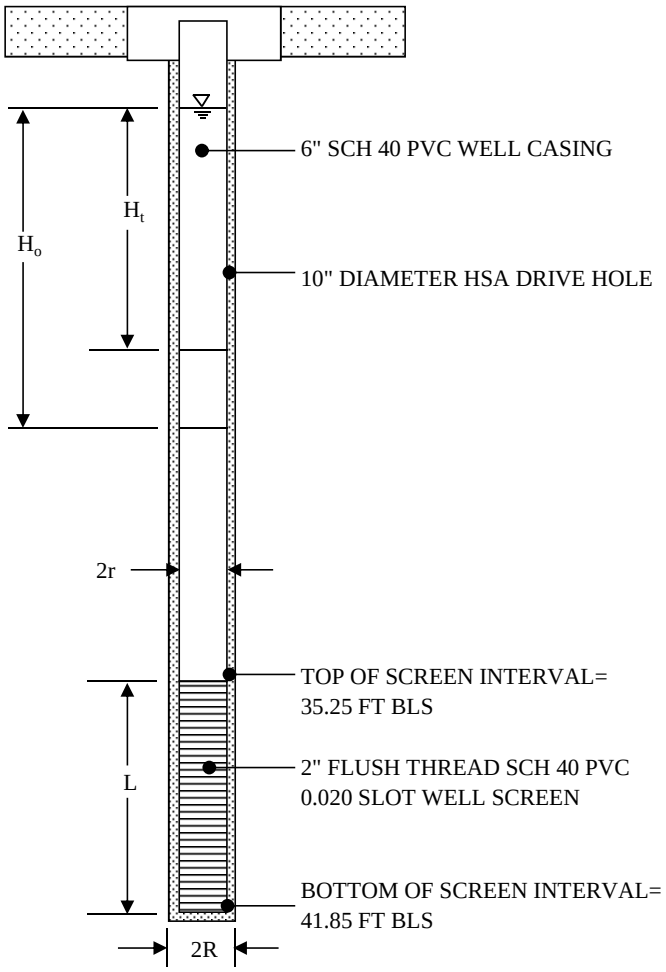
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.9273	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.250	Radius of the well casing
R (ft) =	0.583	Radius of the borehole
L (ft) =	6.6	Length of the screened interval
L/R =	11.314	
T_0 (min) =	1.15	
m =	-0.85	Slope of Fit Line

K (ft/day) = 14.4 Hydraulic Conductivity





RW0007
(Test 3)

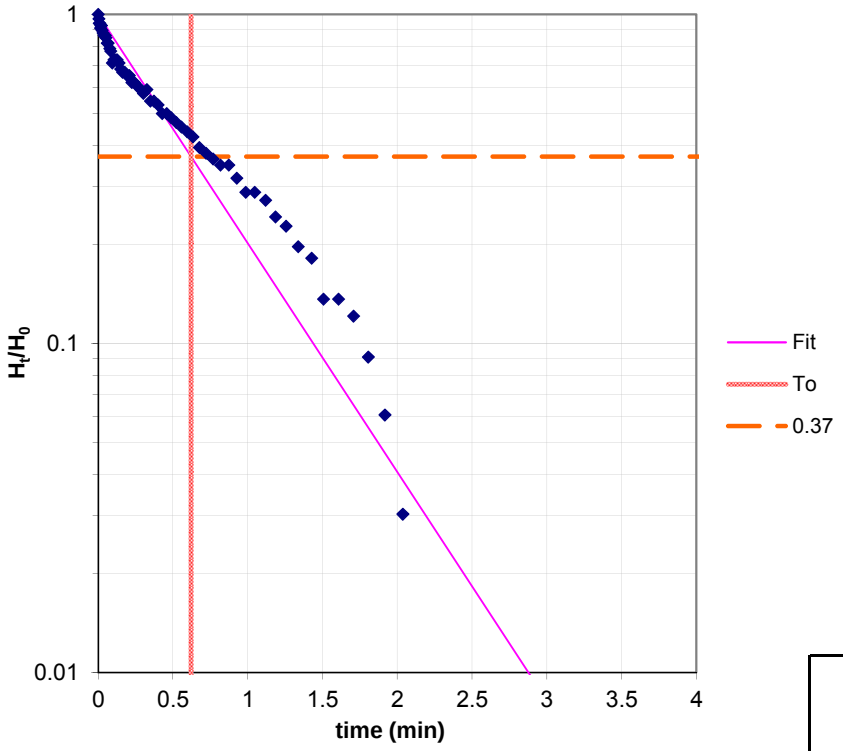
DATE 2/15/2011
PROJECT NO. ER-0716

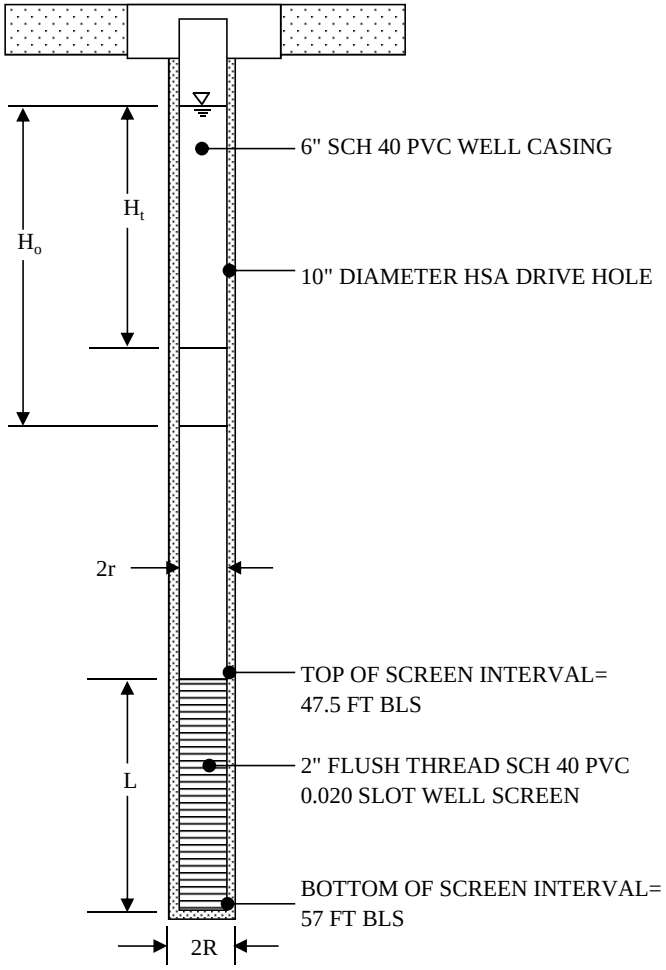
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln(L/R)}{2 L T_o}$

H_0 (ft) =	0.1522	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.250	Radius of the well casing
R (ft) =	0.583	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	16.286	
T_0 (min) =	0.62	
m =	-1.6	Slope of Fit Line

K (ft/day) = 21.3 Hydraulic Conductivity





RW0008
(Test 1)

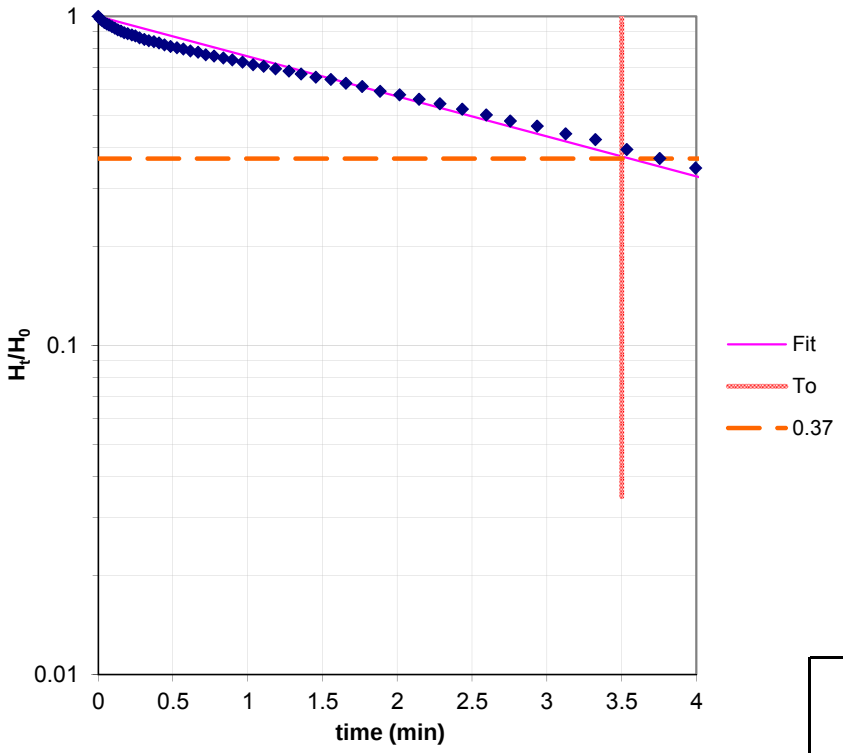
DATE 2/15/2011
PROJECT NO. ER-0716

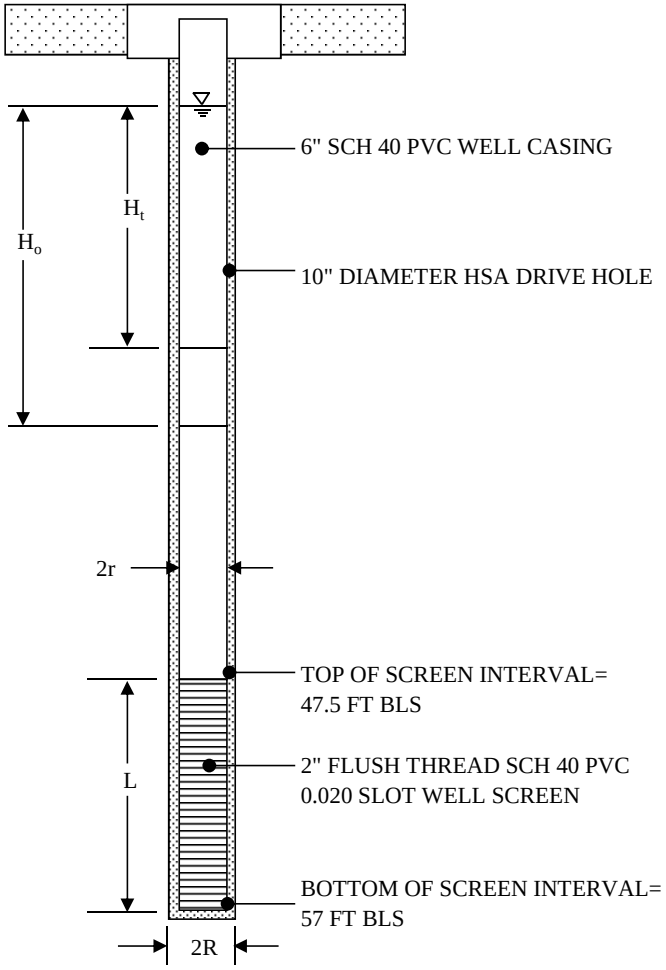
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.6666	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.250	Radius of the well casing
R (ft) =	0.583	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	16.286	
T_0 (min) =	3.5	
m =	-0.28	Slope of Fit Line

K (ft/day) = 3.8 Hydraulic Conductivity





RW0008
(Test 2)

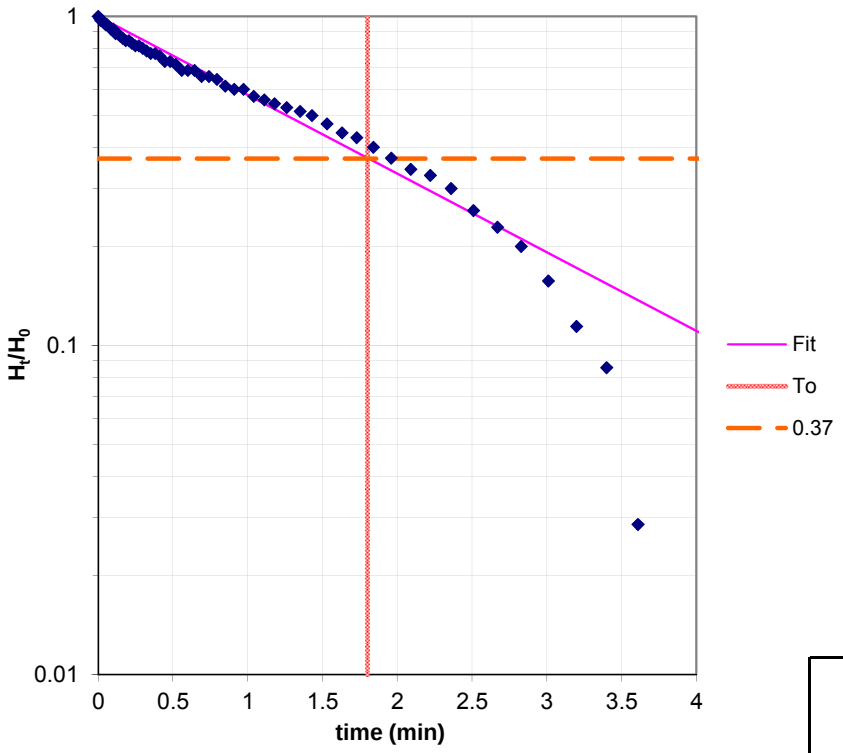
DATE 2/15/2011
PROJECT NO. ER-0716

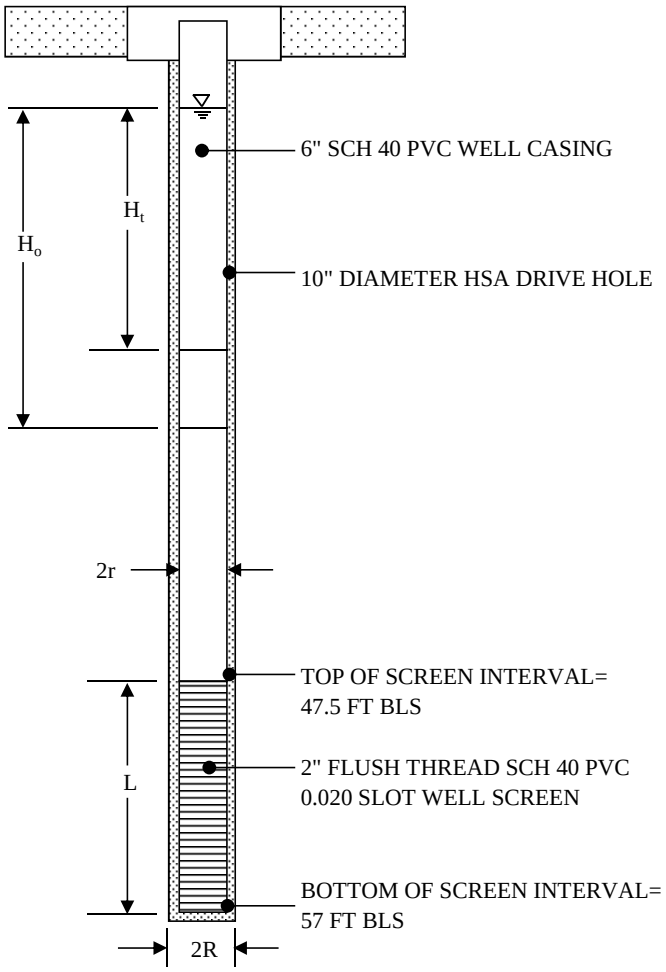
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.1615	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.250	Radius of the well casing
R (ft) =	0.583	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	16.286	
T_0 (min) =	1.8	
m =	-0.55	Slope of Fit Line

K (ft/day) = 7.3 Hydraulic Conductivity





RW0008
(Test 3)

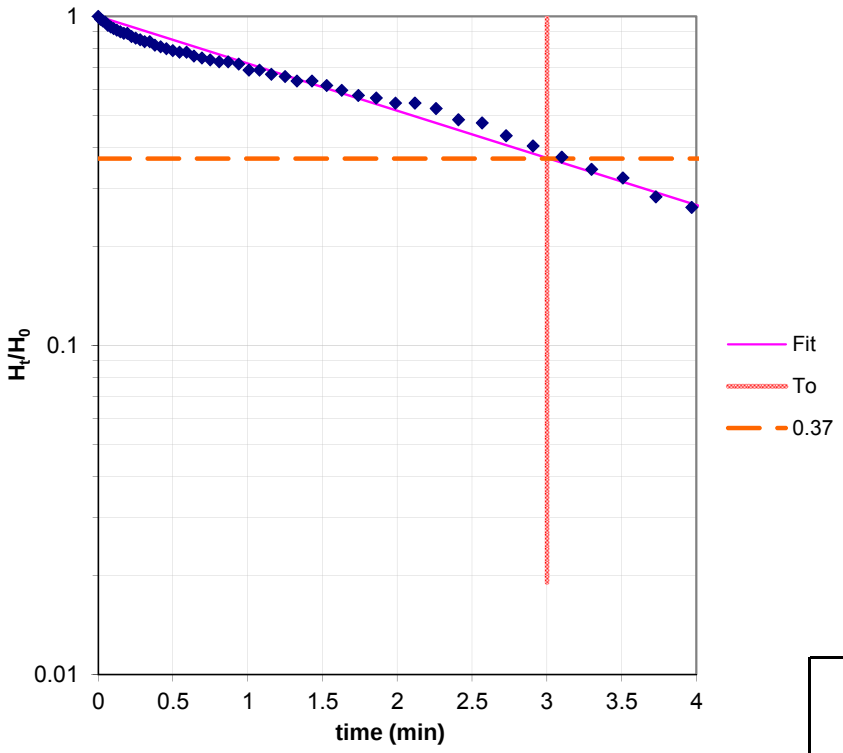
DATE 2/15/2011
PROJECT NO. ER-0716

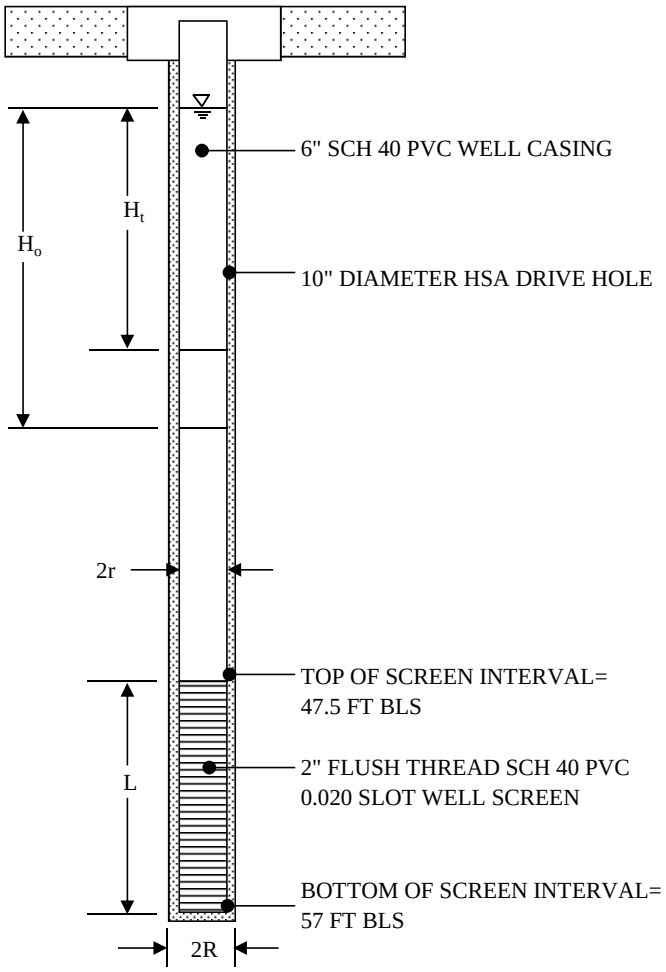
EVALUATION OF HYDRAULIC CONDUCTIVITY (K) BY HVORSLEV METHOD

Hvorslev Equation: $K = \frac{r^2 \ln (L/R)}{2 L T_o}$

H_0 (ft) =	0.2284	Maximum distance below static water level
H_t (ft) =	varies	Distance below static water table at time = t
r (ft) =	0.250	Radius of the well casing
R (ft) =	0.583	Radius of the borehole
L (ft) =	9.5	Length of the screened interval
L/R =	16.286	
T_0 (min) =	3	
m =	-0.33	Slope of Fit Line

K (ft/day) = 4.4 Hydraulic Conductivity





RW0008
(Test 4)

DATE 2/15/2011
PROJECT NO. ER-0716

ATTACHMENT B-3

IDW WASTE MANIFEST

57120

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
FL2800016121	1	800-771-1050	

GENERATOR

5. Generator's Name and Mailing Address
National Aeronautics and Space Administration
Mail Code TA-A4B:Building M-6, Room 1641
Kennedy Space Center, FL 32899
Generator's Phone: 321-867-6971

Generator's Site Address (if different than mailing address)
Launch Complex 34
CCAFS, FL 32920

6. Transporter 1 Company Name: FECC — U.S. EPA ID Number: FLD981748015

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
Omni Waste Of Osceola County
1501 Omni Way
St. Cloud, FL 34773
Facility's Phone: 407-891-3720
U.S. EPA ID Number: NA

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Regulated Material (Industrial Soil) RCRA & D.O.T. Non Hazardous, None, PF# FECC1127-11-002	001	CM		T	
2.						
3.						
4.						

14003

13. Special Handling Instructions and Additional Information
Emergeny Response/Mail Manifest To: FECC, Inc.
800/771-1050
PR# 469
3652 Old Winter Garden Road
Orlando, FL, 32805

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Michael J. Deliz — Signature: Michael J. Deliz — Month 02 Day 08 Year 11

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Ernest A. Whidden — Signature — Month 02 Day 09 Year 11

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name — Signature — Month 2 Day 9 Year 11

169-BLC-O 6 10498 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

APPENDIX C

OPERATION SUMMARY

APPENDIX C

OPERATIONS SUMMARY

Table C-1 presents a summary of the operation and monitoring of the demonstration system from the beginning of well installation in January 2011 through the end of the completion of monitoring for the Interim Measure Recirculation in September 2012. The activities conducted during the various phases of the demonstration are described in the following subsections.

Appendix B summarized the system installation and baseline characterization activities.

C.1 TASK 3 – BASELINE FLUX ASSESSMENT

Baseline Flux Assessment was conducted from 14 March 2011 through 18 April 2011 to characterize baseline groundwater conditions. As described in Appendix B, this involved continuous groundwater extraction for a period of about 4 weeks, with routine weekly sampling of the extraction wells (RW0007 and RW0008) and select monitoring wells to establish the baseline VOC profile and flux under pumping conditions in both the upper and lower sweep zones of the DEM/VAL plot.

C.1.1 BASELINE FLUX ASSESSMENT – SYSTEM OPERATION

Details of the recirculation system operation, including the volume of groundwater recirculated and the effective average flow rate, are tabulated in Table C-2 for the upper zone (RW0007) and Table C-3 for the lower zone (RW0008). Note that the hour meters, which recorded when power to the pumps was on, were not added to the system until after the Baseline Flux Assessment Phase.

In the upper zone, the cumulative volume of groundwater recirculated was 58.6 kilogallons (kgal). The effective average flow rate (calculated from the volume and total elapsed time) for the system was 1.16 gpm. The system was active for about 75% of the time (active time includes the on/off cycle [40 min on/ 20 min off; refer to Appendix B]). The upper zone system (RW0007) generally operated longer, and in the fourth week of the Baseline Flux Assessment in particular; overall time of operation was about 39% greater than the lower zone (RW0008). The cumulative volume extracted from RW0007 over time is presented in Figure C-1 A. The volume of groundwater recirculated was estimated to represent roughly 0.5 sweep zone pore volumes or 2.3 pore volume exchanges of the PED injection zone (refer to Section C.4.1.1 below, and Attachment C-5 to this Appendix).

In the lower zone (RW0008), the cumulative volume of groundwater recirculated was 44.0 kgal. The effective average flow rate for the system was 0.87 gpm; the system was active for about 54% of the time. Time of operation and hence system flow rate slowed over the four week

period, as can be seen in the figure of cumulative volume extracted over time, presented in Figure C-2 A. This was attributed to the batteries poorly holding their charge. The volume of groundwater recirculated was estimated to represent roughly 0.3 pore volumes of the lower sweep zone or 1.7 pore volume exchanges of the PED injection zone (refer to Section C.4.1.1 below, and Attachment C-5 to this Appendix).

During the Baseline Flux Assessment phase, extracted groundwater was treated with granular activated carbon (GAC) to remove VOCs before re-injection. Routine monitoring of the GAC effluent confirmed treatment (see Appendix B); VOCs were not re-injected on the perimeter of the DEM/VAL plots during this phase. Upon completion, the GAC vessels were removed from the system and placed on NASA provided spill pallets, secured with a cargo strap and disposed of by NASA with related IDW.

At the end of the Baseline Flux Assessment Phase the groundwater recirculation system was idled, ready to be re-started following PED injection.

C.1.2 BASELINE FLUX ASSESSMENT – SYSTEM O&M

Weekly O&M activities for the four week duration of the Baseline Flux Assessment Phase included the following:

- inspection of wiring and piping;
- cleaning sediment filters, solar panels, and flow meters as needed;
- recording flow rates and volumes produced from extraction wells;
- rebalancing flow rates between injection wells;
- recording flow rates (initial and adjusted) to injection wells;
- recording battery voltage and charge status (percent charged); and
- correcting any operational abnormalities as needed.

C.1.3 BASELINE FLUX ASSESSMENT – GROUNDWATER SAMPLING

Samling during the Baseline Flux Assessment Phase was described in Appendix B. The sampling program is provided in Appendix D and the samples collected are summarized in Table 2 of the main document.

C.2 TASK 4 – INTRODUCTION OF PED AND TRACERS

C.2.1 PED INJECTION

PED injection was performed from 20 to 28 June 2011 using DPT injection tools. Vironex, a licensed contractor with experience in DPT injection of bioremediation amendments, was subcontracted to perform the injections. Fluid containing PED and conservative tracers (bromide and iodide) was amended throughout the DEM/VAL plot via a set of 20 DPT injection locations. This approach was selected to achieve better initial distribution of the PED throughout the target area, rather than amending recirculated groundwater. The amendment zone targeted the center of the Hot Spot 1 area, where TCE concentrations were greatest, roughly corresponding with the area enclosed by the 30,000 µg/L TCE isopleth and extending beyond that by approximately 5 ft in all directions (refer to Figures 16 and 18 in the main document).

The target area for PED injection was estimated to be approximately 750 ft^2. The area within the 300 µg/L TCE isopleth, which encompasses an area of about 4,000 ft^2, was chosen to define the sweep zone, with the injection well pairs placed at the periphery (Figures 12 and 16).

A total of 34,000 gallons (1,700 gallons per injection point) of fluid, representing approximately 50% of the total pore volume of the target zone, was injected into the target depth interval from about 23 to 63 ft BLS. The target depth interval encompassed the silty clay horizon within which TCE concentrations were elevated. The amendment zone included about 19 ft above the clay horizon, 6 ft within the clay, and about 15 ft beneath the clay horizon. At each location, the injections were conducted in a series of steps, starting at the top of the target interval and working downwards. Injections mostly used a 2-ft injection tool to allow control of the delivery of amendment to targeted intervals; at a few locations a 5-ft injection tool was used. To the extent practicable, injections began at the periphery of the treatment area and proceeded inwards; the injection locations were completed in numerical order (refer to Figure 18), at first two and then three locations at a time (refer to the Vironex Injection Services Report in Attachment C-1 of this Appendix). Based on the target depth intervals, 50% of the total volume, or 17,000 gal of injectate, was amended to the upper sweep zone; 15% of the volume (5,100 gal) was amended within the silty clay horizon; and 35% of the volume (11,900 gal) was amended to the lower sweep zone.

The PED injection fluid was prepared in small batches in two 250-gal plastic tanks, alternating between them so that one batch could be injected while another batch was blended. Each batch contained a concentration of approximately 3,000 mg/L of nBA (roughly half of its solubility). Amendment batches were mixed for 15 minutes prior to injection to ensure complete dissolution of the nBA and tracer salts. A total of 115 gal of nBA, with a total mass of 380 kg, was added to the DEM/VAL area.

Injection rates typically ranged from 6 to 8 gpm, requiring pressures of 30 to 45 pounds per square inch (psi). At the bottom of each injection location, 10 to 35 gal of water was used to flush the lines. When injection at a location was complete, the injection tool was removed, standard DPT rods were pushed to depth and the borehole was tremie grouted to surface with Portland cement. During all injection activities, a photoionization detector (PID) was used to screen the air in the work area to ensure that a safe working environment was maintained. A summary of the injections, including individual records for each injection location, is included in the Injection Services Report (Attachment C-1). Field forms from the injection activities are provided in Attachment C-2.

C.2.2 TRACER INJECTION

Potassium bromide (KBr) was added to all injectate batches at a target bromide concentration of approximately 60 mg/L in the injection fluid. A total of roughly 11.6 kg of KBr (containing 7.8 kg of Br) was thus introduced to the treatment area. Relative bromide concentrations can be used to normalize PED concentrations to account for dilution. Based on the distribution of injectate volume between zones, 3.9 kg of bromide was added to the upper sweep zone, 1.2 kg within the silty clay horizon and 2.7 kg to the lower sweep zone.

PED injection fluids for the upper zone were also amended with potassium iodide (KI) at a target iodide concentration of 140 mg/L in the injection fluid. A total of about 11.7 kg of KI (containing 8.9 kg of I) was added to the 17,000 gal introduced into the upper zone. This concentration was selected to be somewhat higher than for bromide, since it was expected that only relatively small amounts of fluid, if any, would be transported through the clay layer from the upper sweep zone to the lower sweep zone.

C.2.3 PED AMENDMENT BATCH QUALITY CONTROL

A total of 155 batches of nBA injection fluid, each about 220 gal in volume, were prepared over the course of the injection program. To verify the actual concentrations of nBA and tracer obtained, quality control (QC) samples were collected from a random selection of the batches and submitted for laboratory analysis for nBA and tracer anions (bromide and iodide). Batch QC samples were obtained from a sample port in the injection manifold. Each day, 2 or 3 batches were sampled, resulting in a total of 17 batch samples representing roughly 10% of the total (refer to Table 2 of main document).

Results from the batch QC sampling are compiled and presented in Table E-1-3 in Appendix E. The laboratory reports are provided in Appendix G.

C.2.4 PED INJECTION CONFIRMATION SAMPLING

Two types of confirmation samples were collected to evaluate the effectiveness of the PED injections. Immediately following PED injection, DPT groundwater samples were collected at several depths adjacent to select PED injection locations to assess the radius of influence (ROI) achieved. A week later, groundwater samples were collected from select monitoring well locations within the DEM/VAL plots.

C.2.4.1 PED Injection DPT Groundwater Sampling

On 30 June 2011, two days after completion of the PED injection activities, DPT groundwater samples were collected at the four locations (DPT0328, DPT0329, DPT0330, and DPT0331) presented on Figure C-7 and analyzed in a mobile laboratory for nBA and VOCs. Split samples were submitted to a fixed laboratory for analysis of bromide and iodide. A subset of the split samples were also analyzed in the fixed laboratory for VOCs including nBA and nBuOH. A total of 18 samples were collected, from 4 or 5 depths per location.

The locations were sampled in order, starting at DPT0328. The positions were adjusted in the field in response to the results obtained by the mobile lab. Locations DPT0330 and DPT0328 were located about 2 feet and 4 feet from the nearest injection location (IP09), respectively. These locations evaluated nBA distribution at a single injection location on the periphery.

The other two sample locations evaluated nBA distribution closer to the interior of the injection grid, where more than one injection occurred. Location DPT0329 was located about 2.5 feet from the nearest injection location (IP16), and location DPT0331 was located about 6.0 feet from IP16, but within about 3.5 feet of IP06.

Sample locations were tremie grouted to surface following sample collection.

The results (VOCs, nBA, nBuOH and tracers) from the confirmation DPT groundwater sampling are compiled and presented in Table E-1-4 in Attachment E-1 in Appendix E and an analysis of this data is presented in Table E-4-1 in Attachment E-4 in Appendix E. The laboratory reports (from both the mobile and fixed laboratories) are provided in Appendix G.

C.2.4.2 PED Injection Monitoring Well Groundwater Sampling

To further assess the distribution of PED following injection, on 07 July 2011, nine days following the end of the injection event, samples were collected from eleven monitoring wells (BW0001C/D/E, BW0002C/D/E, BW0003C/D/E, RW0007, and RW0008) and laboratory analyzed for VOCs, nBA and nBuOH, and tracers (refer to Table 2 and Appendix D). During well purging, field parameters, including pH, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), conductivity, total dissolved solids (TDS), and turbidity, were recorded at regular intervals until consecutive readings had stabilized.

The results from this confirmation sampling event are presented in Tables E-1-5 (VOCs, nBA and nBuOH), E-1-6 (Tracers) and E-1-9 (Field Geochemical Parameters) in Attachment E-1 in Appendix E; this data is also presented in Table E-4-2 in Attachment E-4 in Appendix E. The results are plotted in Figures 1, 3, 4, and 20 of the main document for the extraction wells (and the corresponding figures in Appendix E for other wells). The laboratory reports are provided in Appendix G.

C.3 TASK 5 – BIOMASS GROWTH PHASE

Following PED injection, the recirculation system remained off for a period of six weeks to allow the PED to partition into NAPL within the DEM/VAL plot and to facilitate the acclimation and establishment of biomass within the DEM/VAL plot. Groundwater extraction during this 'shut-in' phase was undesirable, since it might have removed much of the amended nBA and re-injected it on the periphery. At the end of the Biomass Growth Phase, the distribution of PED and VOCs within the DEM/VAL plot was assessed through DPT soil sampling and a synoptic survey of groundwater concentrations. This was intended to help to assess the partitioning effect of PED into residual DNAPL and establish a baseline before recirculation was restarted.

C.3.1 BIOMASS GROWTH PHASE – GROUNDWATER SAMPLING

Twenty-four locations, including the extraction wells, bundle monitoring wells and monitoring wells, were sampled on 1 and 2 August 2011. The samples were laboratory analyzed for VOCs, nBA and nBuOH, VFAs, tracers (Br and I), TOC, Sulfide, DHGs, Anions, Alkalinity, Dissolved Metals and microbial characterization (archived). The analyses are summarized in Table 2 and detailed in Appendix D.

Results from the Biomass Growth Phase sampling event are compiled and presented in Tables E-1-5 (VOCs, nBA and nBuOH), E-1-6 (DHGs, Anions and Tracers), E-1-7 (TOC, VFAs and nBA), E-1-8 (Dissolved Metals) and E-1-9 (Field Geochemical Parameters) in Attachment E-1 in Appendix E. The VOC data is plotted in Figures 1, 3, 4 and 20 of the main document and in the corresponding time-trend and VOC distribution plots included in Appendix E. The TOC and VFA data is also plotted in Figure 2. The VOC data is used in the plume mass estimates in Section E.6.1 and Attachment E-6 in Appendix E and Figure 21 of the main document. Attachment E-5 in Appendix E presents the organic carbon data (VOCs, nBA, nBuOH and VFAs) on a molar basis. The laboratory reports from these sampling events are provided in Appendix G.

C.3.2 BIOMASS GROWTH PHASE – SOIL SAMPLING

On 3 August 2011, three soil cores (DPT0332, DPT0333, and DPT0334) were collected using DPT techniques at the locations presented on Figure 17 (main document). Seventeen sample intervals were selected by PID screening. Subsamples were collected and analyzed for VOCs

and nBA. In addition, the cores were visually logged to document soil lithology. Boring logs are provided with the field forms in Attachment C-2 of this Appendix. Soil IDW was contained in properly labeled 55-gallon drums which were stored on NASA provided spill pallets secured with cargo straps.

Results from the soil sampling event are presented in Table E-1-1 in Attachment E-1 in Appendix E. Laboratory results from this sampling event are provided in Appendix G.

C.4 TASK 6 –RECIRCULATION SYSTEM OPERATION

The groundwater recirculation system was activated on 09 August 2011 and operated for approximately thirteen months, until 13 September 2012. The first seven months (28 weeks), through 16 February 2012, are considered the Main Recirculation Phase, which corresponds to the duration of the DEM/VAL proposed in the TDP. System operation was continued for an additional seven months, through 13 September 2012, under an Interim Measure Work Plan (IMWP) for NASA. This continuation period is referred to as the Interim Measure Recirculation Phase.

C.4.1 RECIRCULATION SYSTEM OPERATION - SYSTEM OPERATION

C.4.1.1 Main Recirculation Phase

Details of the recirculation system operation, including the volume of groundwater extracted and re-injected, the time of operation, the effective average flow rate and the percentage of time active, are tabulated in Table C-2 for the upper zone (RW0007) and Table C-3 for the lower zone (RW0008).

Figure C-5 presents the hydrograph of the water level in the upper extraction well (RW0007) for the first month of operation. The effect of the 40 minutes on, 20 minutes off timing cycle is clearly shown in the oscillation of the water level. The response to pumping is rapid (on and off). The shape of the curve is partly due to the recording frequency of 15 minutes; data is recorded at varying points in the drawdown/recovery cycle. The figure also shows the longer shut off periods, when the system ran out of power, typically a little after midnight. Peak drawdown was about 7.5 feet, with an average drawdown of about 4 feet, estimated as the midpoint of the oscillating water level during active pumping. Hydrographs for the remainder of the recirculation system operation are presented in Attachment C-4 to this Appendix.

Figure C-6 presents the hydrograph of the water level in the lower extraction well (RW0008) for the first month of operation. Hydrographs for the remainder of the recirculation system operation are presented in Attachment C-4 to this Appendix. A similar pattern in the water level was observed in RW0008, with fine oscillations resulting from the timing cycle and larger overnight idle periods. In RW0008 the peak drawdown was approximately 27.5 feet, with

average drawdown of approximately 22 feet. At RW0008, the water level did not fully recover during the 20 minute downtime in the pump cycle; recovery was about 15 feet. Hence, during the period of active cycling, an effective hydraulic gradient was maintained towards the well. Greater drawdown reflects a lower transmissivity at RW0008, since the pumps operated similarly at about 2.5 gpm when powered. The difference in drawdown between the extraction wells meant that there was generally a hydraulic gradient downward across the silty clay confining layer in the vicinity of the extraction wells.

Attachment C-4 includes hydrographs for wells IW0002D, IW0002D1, IJ0013 and IJ0014 during the Main Recirculation Phase (after which the leveloggers were removed and were not deployed during the Interim Measure Recirculation Phase). The influence of the extraction wells is shown in the hydrographs for wells IW0002D and IW0002D1, which are located 6.7 feet and 11.9 feet from RW0007 and RW0008, respectively. For example, during Week 3 (last week of August 2011), drawdown at IW0002D was about 0.46 ft and at IW002D1 was about 0.60 ft. Response to pumping was immediate, and the fine oscillations of the timing cycle were observed in both the upper and lower zones.

In both the upper and lower zones, the flow of extracted water was split evenly between five peripheral injection wells (Figure 13 in the main document). The flow splits were checked and rebalanced during the routine O&M visits (see Section C.4.2 below). Flow to each injection well was approximately 0.5 gpm during actual pumping. The effective average injection rates were approximately 0.17 gpm per injection location in the upper zone (0.16 gpm in the lower). Hydrographs for a pair of injection wells, IJ0013 and IJ0014, are presented in Attachment C-4. For IJ0013 the mound during pumping was approximately 1.7 ft (perhaps half this, 0.85 ft on average during active cycle). For IJ0014, the injection mound during pumping was approximately 2.4 ft. Comparison of the hydrographs suggests that an upward hydraulic gradient may exist both during active pumping and during non-pumping periods. The water level in the lower unit (IJ0014) was above that in the upper unit (IJ0013) during injection (greater mounding) and remained higher during periods with no injection. Note that actual groundwater elevations could not be determined (since TOC elevations were not surveyed).

Figure C-3 summarizes the operating history for RW0007, showing the percentage of time that the system was active and the cumulative volume extracted. The categories (x-axis) represent O&M events and are not evenly spaced in time. The cumulative volume extracted as a function of time is presented in Figure C-1 B, which shows a fairly uniform rate over the duration of the field demonstration. Details of the recirculation system operation are tabulated in Table C-2.

A total of 243.4 kgal were recirculated in the upper zone. The effective average flow rate for the system was 0.89 gpm. The system was active for about 53% of the time (active time includes the on/off cycle). Variations in the amount of time the system was active are apparent in Figure C-3; weather, and hence recharge of the solar-powered recirculation system was the main variable controlling system operation.

The upper zone (RW0007) typically operated for somewhat longer than the lower zone (RW0008), averaging 9% more time active. This is attributed to differences in the power required for the pumps to recirculate water in the upper versus lower zone wells; in the lower zone, the system created greater drawdown and consequently needed to lift the water further during pumping, and the greater injection mounding created slightly more resistance due to backpressure. There may have also been minor differences in the efficiency of the solar panels that recharged the system batteries.

Figure C-4 summarizes the operating history for RW0008, showing the percentage of time that the system was active and the cumulative volume extracted. The cumulative volume extracted as a function of time is presented in Figure C-2 B, which shows a fairly uniform rate over the duration of the demonstration. Details of operation are tabulated in Table C-3.

A total of 221.6 kgal were recirculated in the lower zone. The effective average flow rate for the system was 0.81 gpm. The system was active for about 48% of the time (active time includes the on/off cycle). Variations in the amount of time the system was active are apparent in Figure C-4. As with the upper zone system, weather, and hence recharge of the solar-powered system, was the main variable controlling system operation.

PED injection delivered a total of 34,000 gal of amendment fluid. Of this, 17,000 gal was injected into the upper zone, 5,100 gal into the silty clay horizon, and 11,900 gal into the lower zone. Thus the upper zone recirculation volume was a factor of 14.3 greater than the injectate volume, while the lower zone recirculation volume was a factor of 18.6 greater than its corresponding injectate volume. Considering that the design volumes were selected to target 50% of the pore volume in the injection zone, the recirculated volumes in the upper and lower zones represent approximately 7 and 9 pore volume replacements, respectively.

Although it is not possible to determine the actual volume of groundwater involved in the recirculation cells in each sweep zone, some estimates can be made. For the upper zone, the thickness of the saturated aquifer above the silty clay is about 36 feet. Of this, 20 feet was targeted for injection. The extraction well RW0007 has a screened interval of 7 feet, and the injection wells have 10 ft screens, all situated at the base of the upper zone, directly above the silty clay horizon to direct flow across this layer where most of the TCE mass was thought to reside. The relatively short screens in these partially penetrating wells will induce vertical flow components, which will be most prominent near the wells. Horizontal flow is likely not established, since that would require distances beyond about 1.5 times the thickness of the aquifer (i.e., horizontal flow would be expected about 54 ft from an extraction or injection well) and the injection wells are all within this distance of the extraction wells. However, because of the relatively short well screens, the majority of flow is expected to occur in the lower portion of the zone. Thus, the depth interval through which groundwater was recirculated was most likely between 10 and 20 feet. Estimates of the pore volume for various thicknesses and radial distances were calculated (presented in Attachment C-5 to this Appendix). Using a thickness of

15 ft, and a radius of 35 ft, which roughly corresponds to the position of the injection wells, the pore volume of the upper sweep zone was estimated to be 130 kgal, and the volume recirculated in the Main Recirculation Phase corresponds to 1.9 pore volumes. The table in Attachment C-5shows how this estimate varies with the assumed thickness of the sweep zone; if 20 ft thick, the recirculated volume was about 1.4 pore volumes. If just the area within which PED injection occurred is considered, the number of pore volume exchanges is estimated to be about 9.6.

Corresponding estimates were made for the lower sweep zone, as shown in Attachment C-5 for RW0008. The extraction well (RW0008) and injection wells have 10 ft screens, and the PED injections spanned a 15 ft thickness. Assuming a thickness of 15 ft, the pore volume of the lower sweep zone was estimated to be 130 kgal and the volume recirculated in the Main Recirculation Phase was about 1.7 sweep zone pore volumes, or about 8.8 pore volume exchanges of the PED injection area.

These estimates of pore volume demonstrate that considerably more groundwater was recirculated than was initially amended with PED and injected. The fact that extracted water continued to contain donor equivalents indicates that the initial injection was able to supply donor to several multiples of the initial injectate volume.

C.4.1.2 Interim Measure Recirculation Phase

Operation continued unchanged for the Interim Measure Reciculation Phase. Hydrographs for RW0007 and RW0008 for the full period of operation are presented in Attachment C-4. Leveloggers were not deployed in any other wells during this phase.

The operating history for the upper zone (RW0007) is presented in Figure C-3, wherein the purple bars for Time Active indicate the Interim Measure Reciculation Phase. Details of operation are tabulated in Table C-2. The system was active for about 49% of the time, slightly less than during the Main Recirculation Phase. The effective average flow rate for the system was 0.82 gpm, down slightly from the prior phase. The recirculated volume for the upper sweep zone was 240.9 kgal, representing an additional 1.9 pore volumes, or approximately 9.5 additional exchanges of the PED injected area (refer to Attachment C-5 for tabulated estimate).

The operating history for the lower zone (RW0008) is presented in Figure C-4, wherein the purple bars for Time Active indicate the Interim Measure Reciculation Phase. Details of operation are tabulated in Table C-3. The system was active for about 47% of the time, essentially the same as during the Main Recirculation Phase. The effective average flow rate for the system was 0.81 gpm, the same as during the prior phase. The recirculated volume for the lower sweep zone was 239.2 kgal, representing an additional 1.8 pore volumes, or approximately 9.5 additional exchanges of the PED injected area (refer to Attachment C-5 for tabulated estimate).

C.4.2 RECIRCULATION SYSTEM OPERATION - SYSTEM O&M

The groundwater recirculation system operated continuously, with routine O&M inspections to ensure consistent operation of the system (weekly inspections for the first five months, once every 1.5 weeks until the end of the Main Recirculation Phase in Month 7, then biweekly for the Interim Measure Recirculation Phase through until Month 13).

Routine O&M events included the following:

- recording of operational parameters including total volume extracted, extraction flow rates, total operable time (hour meter), battery voltage and charge status, and individual flow rates to the injection wells;
- adjustment of flow rates to injection wells as required to maintain balance of flow between injection wells;
- cleaning and replacing filters as required;
- inspection of visible equipment and tubing runs for leaks or damage and performance of needed maintenance;
- inspection of the solar panels, charge controller and batteries and performance of needed maintenance; and
- periodic retrieval of water level data from the data loggers.

On a few occasions it was necessary to remove a pump for repair. No rehabilitation or re-development of the wells was required. O&M forms are included in Attachment C-3 of this Appendix.

C.4.3 RECIRCULATION SYSTEM OPERATION - GROUNDWATER SAMPLING

C.4.3.1 Groundwater Sampling - Main Recirculation Phase

Throughout the Main Recirculation Phase, groundwater samples were routinely collected to assess the VOC mass flux and evaluate the microbial reductive dechlorination of VOCs.

The extraction wells were sampled weekly for the first month and then bi-weekly for five months thereafter. Samples were analyzed for the parameters in Table 2 of the main document, as detailed in the sampling program in Appendix D. Samples were collected for the assessment of various constituents, namely VOCs, nBA and its hydrolysis product, nBuOH, related fermentation products (i.e., butyrate, acetate, etc. [VFAs]), and the bromide and iodide tracers. To support the interpretation of the data, samples for additional parameters, such as TOC, anions, dissolved metals, DHGs and alkalinity were also collected, along with field parameters (DO, ORP, specific conductivity). Samples for microbial characterization were collected on a monthly basis and archived, with analysis of only the Month 3 and Month 7 samples.

A synoptic survey of the DEM/VAL plot monitoring locations, including extraction wells, bundle monitoring wells, existing site monitoring wells and the far-field monitoring wells (30 wells in total) was conducted at Month 3 (October 2011) and at Month 7 (February 2012), at completion of the Main Recirculation Phase. The samples were laboratory analyzed for VOCs, nBA and nBuOH, VFAs, tracers (Br and I), TOC, DHGs, Sulfide, Anions, Alkalinity, Dissolved Metals and microbial characterization (at select locations). The details of the sampling program are presented in Appendix D and the samples are summarized in Table 2 of the main document.

Results from the Main Recirculation Phase sampling events are compiled and presented in Tables E-1-5 (VOCs, nBA and nBuOH), E-1-6 (DHGs, Anions and Tracers), E-1-7 (TOC, VFAs and nBA), E-1-8 (Dissolved Metals), E-1-9 (Field Geochemical Parameters) and E-1-10 (*Dhc* and *vcr*A) in Attachment E-1 in Appendix E. The VOC data is plotted in Figures 1, 3, 4 and 20 of the main document and in the corresponding time-trend and VOC distribution plots included in Appendix E. The TOC and VFA data is also plotted in Figure 2. The VOC data is used in the plume mass estimates in Figure 21. Attachment E-5 in Appendix E presents the organic carbon data (VOCs, nBA, nBuOH and VFAs) on a molar basis. The laboratory reports from these sampling events are provided in Appendix G.

C.4.3.2 Groundwater Sampling – Interim Measure Recirculation Phase

A somewhat reduced groundwater sampling program was conducted during the Interim Measure Recirculation Phase, from Month 7 until the end in Month 13; the frequency of extraction well monitoring was reduced to monthly sampling for VOCs (including nBA and nBuOH). A synoptic survey was collected in Month 10 (June 2012) and at the end of operation in Month 13 (September 2012). Samples were were laboratory analyzed for VOCs (including nBA and nBuOH), TOC, and DHGs; select locations were sampled for microbial characterization. The far-field wells were removed from the program for Month 13, in accordance with the UIC permit, since the previous two events had shown no nBA at these locations. The sample analyses are listed in Table 2 and in the detailed program in Appendix D.

Results from the Interim Measure Recirculation Phase sampling events are compiled and presented in Tables E-1-5 (VOCs, nBA and nBuOH), E-1-6 (DHGs, Anions and Tracers), E-1-7 (TOC, VFAs and nBA), E-1-9 (Field Geochemical Parameters) and E-1-10 (*Dhc* and *vcr*A) in Attachment E-1 in Appendix E. The VOC data is plotted in Figures 1, 3, 4 and 20 of the main document and in the corresponding time-trend and VOC distribution plots included in Appendix E. The TOC and VFA data is also plotted in Figure 2. The VOC data is used in the plume mass estimates in Figure 21. Attachment E-5 in Appendix E presents the organic carbon data (VOCs, nBA, nBuOH and VFAs) on a molar basis. The laboratory reports from these sampling events are provided in Appendix G.

C.4.4 RECIRCULATION SYSTEM OPERATION - SOIL SAMPLING

Soils samples were collected at the end of the Main Recirculation Phase (Month 7) and at the end of the Interim Measure Recirculation Phase (Month 13). Three soil cores (DPT0346, DPT0347, and DPT0348) were collected on 13 February 2012 and three soil cores (DPT0349, DPT0350, and DPT0351) were collected on 10 September 2012. As shown in Figure 17 (main document), the locations corresponded to the locations (DPT0332, DPT0333, and DPT0334) sampled following the Biomass Growth Phase (03 August 2011), to facilitate comparison over the course of the DEM/VAL. Soil cores were collected using DPT techniques, screened with a PID, and subsampled at various depths based on the PID response and lithology. Boring logs that document the soil lithology are provided with the field forms in Attachment C-2 of this Appendix. A total of 24 samples were selected during the Month 7 sampling event and 22 were selected during the Month 13 event. The samples were submitted to a fixed laboratory for analysis for VOCs, including nBA and nBuOH (refer to Table 2). Select soil samples from the final event in Month 13 were analyzed for *Dhc* and *vcr*A (data not reported herein). Soil IDW was contained in properly labeled 55-gallon drums which were stored on NASA provided spill pallets secured with cargo straps.

The results from the soil sampling events are compiled and presented in Table E-1-1 in Attachment E-1 in Appendix E. Laboratory reports from these sampling events are provided in Appendix G.

C.5 TASK 7 - SYSTEM DEMOBILIZATION

The system was turned over to NASA at the end of the Main Recirculation Phase, to conduct the Interm Measure Recirculation Phase. At the end, the system was simply idled. NASA may decide to perform further remediation at Hot Spot 1 in the future.

C.6 ATTACHMENTS

Table C-1	PED DEM/VAL Event Schedule Summary
Table C-2	History of Operation for RW0007
Table C-3	History of Operation for RW0008
Figure C-1 A	RW0007 - Volume of Water Recirculated during Baseline Flux Assessment
Figure C-1 B	RW0007 - Volume of Water Recirculated during Recirculation System Operation
Figure C-2 A	RW0008 - Volume of Water Recirculated during Baseline Flux Assessment
Figure C-2 B	RW0008 - Volume of Water Recirculated during Recirculation System Operation
Figure C-3	RW0007 Operating History
Figure C-4	RW0008 Operating History
Figure C-5	Water Level at Upper Extraction Well (RW0007) – Month 1
Figure C-6	Water Level at Lower Extraction Well (RW0008) – Month 1
Figure C-7	Injection Confirmation Monitoring Locations
Attachment C-1	Vironex Injection Report
Attachment C-2	Field Forms
Attachment C-3	O&M Forms
Attachment C-4	Hydrographs
Attachment C-5	Recirculated Pore Volume Estimates

TABLE C-1. PED DEM/VAL EVENT SCHEDULE SUMMARY

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Task	Task Name	Date	Activity
1	Well Installation	17 to 21 and 24 & 25 January 2011	Well Installations & Baseline Soil Sampling
2	Baseline Sampling	1 to 3 February 2011	Baseline groundwater sampling
2	Baseline Sampling	15-Feb-11	Baseline hydraulic conductivity assessments
1	System Install & Shake Down	March 2011	Groundwater recirculation system constructed, including mobile trailer
3	Baseline Flux Assessment	14-Mar-11	Groundwater recirculation system start up
		22-Mar-11	BFA Week 1 Groundwater Sampling
		28-Mar-11	BFA Week 2 Groundwater Sampling
		7-Apr-11	BFA Week 3 Groundwater Sampling
		18 and 19 April	BFA Week 4 Groundwater Sampling Synoptic Survey
		18-Apr-11	Recirculation system shut down
4	Introduction of PED & Tracers	20 to 24 and 27 & 28 June 2011	PED Injection Activities
		30-Jun-11	DPT groundwater sampling (DPT328 – DPT331) to aid in evaluation of radius of influence from injection activities
		7-Jul-11	Groundwater sampling from select site monitoring wells to evaluate nBA distribution
5	Biomass Growth Phase	July to August 2011	Biomass growth phase – recirculation system off
		1 to 3 August 2011	Post-biomass growth phase soil and groundwater sampling
6a	Recirculation System Operation	9-Aug-11	Restart groundwater recirculation system
		12-Aug-11	Week 1 O&M and groundwater sampling (RW wells only)
		18-Aug-11	Week 2 O&M and groundwater sampling (RW wells only)
		24-Aug-11	Week 3 O&M and groundwater sampling (RW wells only)
		31-Aug-11	Week 4 O&M and groundwater sampling (RW wells only)
		8-Sep-11	Week 5 O&M
		15-Sep-11	Week 6 O&M and groundwater sampling (RW wells only)
		22-Sep-11	Week 7 O&M
		28-Sep-11	Week 8 O&M and groundwater sampling (RW wells only)

TABLE C-1. PED DEM/VAL EVENT SCHEDULE SUMMARY

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Task	Task Name	Date	Activity
6a	Recirculation System Operation (cont'd)	5-Oct-11	Week 9 O&M
		13-Oct-11	Week 10 O&M and groundwater sampling (RW wells only)
		20-Oct-11	Week 11 O&M
		25- to 27-Oct-11	Week 12 (Month 3) O&M and groundwater sampling (synoptic survey)
		3-Nov-11	Week 13 O&M
		10-Nov-11	Week 14 O&M and groundwater sampling (RW wells only)
		17-Nov-11	Week 15 O&M
		22-Nov-11	Week 16 O&M and groundwater sampling (RW wells only)
		1-Dec-11	Week 17 O&M
		7-Dec-11	Week 18 O&M
		15-Dec-11	Week 19 O&M and groundwater sampling (RW wells only)
		22-Dec-11	Week 20 O& M
		5-Jan-12	Week 22 O&M and groundwater sampling (RW wells only)
		16-Jan-12	Week 24 O&M
		26-Jan-12	Week 25 O&M and groundwater sampling (RW wells only)
		6-Feb-12	Week 27 O&M
		13-Feb-12	Week 28 (Month 7) Final Soil Samples
		14- to 16-Feb-12	Week 28 (Month 7) O&M and Final Dem/Val Groundwater Sampling (synoptic survey)
6b	Interim Measure Recirculation Phase	2-Mar-12	Week 30 O&M
		15-Mar-12	Week 32 O&M and groundwater sampling (RW wells only)
		5-Apr-12	Week 35 O&M
		19-Apr-12	Week 37 O&M and groundwater sampling (RW wells only)
		4-May-12	Week 39 O&M
		17-May-12	Week 41 O&M and groundwater sampling (RW wells only)
		7-Jun-12	Week 44 O&M
		21-Jun-12	Week 46 O&M

TABLE C-1. PED DEM/VAL EVENT SCHEDULE SUMMARY

Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Task	Task Name	Date	Activity
6b	Interim Measure Recirculation Phase (cont'd)	26- to 27-Jun-12	Week 47 (Month 10) groundwater sampling (synoptic survey)
		10-Jul-12	Week 49 O&M
		19-Jul-12	Week 50 O&M and groundwater sampling (RW wells only)
		2-Aug-12	Week 52 O&M
		16-Aug-12	Week 54 O&M and groundwater sampling (RW wells only)
		6-Sep-12	Week 57 O&M (final totalizer readings; system on)
		10-Sep-12	Week 58 soil sampling
		13-Sep-12	Week 58 (Month 13) groundwater sampling (synoptic survey)
			** no final readings from time system was turned off

TABLE C-2
HISTORY OF OPERATION FOR EXTRACTION WELL RW0007 (UPPER ZONE)

Phase	O&M Event	Date	Days Elapsed	Elapsed Time Between Events[1] (h)	Actual Hour Meter Reading[2] (h)	Adjusted Hour Meter Reading[3] (h)	Pump Operating Time - Hour Meter[4] (h)	System Flow Rate[5] (gpm)	Flow Totalizer Reading (gal)	Volume Recirculated[6] (gal)	Effective Average Flow Rate[7] (overall) (gal)	Average Flow Rate[8] (gpm)	Total Volume Recirculated (gal)	Cumulative Volume Since Start[9] (kgal)	Pump Operating Time - Flow Rate[10] (h)	RPD[11] (Flow Rate: Hour Meter) (%)	Time Pump Operated[12] (%)	Time Active[13] (%)	Comments	Ratio of Time Active[14] (upper/lower)
Baseline Flux Assessment	--	3/14/2011	0	0	na	na	na	2.1	87				0	0.0					system startup - baseline flux assessment	
	BF Wk 1	3/21/2011	7	168	na	na	na	2.3	16,252	16,165	1.60	2.20	16,165	16.2	122.5	na	72.9%	109.3%		1.27
	BF Wk 2	3/29/2011	15	192	na	na	na	2.4	28,264	12,012	1.05	2.35	28,177	28.2	85.8	na	44.7%	67.0%	readings only; no system O&M	1.13
	--	4/1/2011	18	264	na	na	na	2.5	31,048	2,784	0.93	2.40	30,961	31.0	102.8	na	38.9%	58.4%		1.07
	--	4/4/2011	21	72	na	na	na	2.4	36,505	5,457	1.26	2.45	36,418	36.4	37.1	na	51.6%	77.3%	readings only; no system O&M	1.28
	BF Wk 3	4/7/2011	24	144	na	na	na	2.5	40,970	4,465	1.15	2.45	40,883	40.9	67.5	na	46.9%	70.3%		1.34
	BF Wk 4	4/18/2011	35	264	na	na	na	2.2	58,731	17,761	1.12	2.35	58,644	58.6	126.0	na	47.7%	71.6%		2.06
	phase total			**840**						**58,644**	**1.16**	**2.32**			**420.4**		**50.1%**	**75.1%**		**1.39**
Main Recirculation System Operation	Restart	8/9/2011	0	0	0	0	na	2.6	58,771					0					system restart - main recirculation phase	
	Wk 1	8/12/2011	3	72	42.7	42.7	42.7	2.5	65,561	6,790	1.57	2.65	65,521	6.8	44.4	3.9%	59.3%	89.0%		0.94
	Wk 2	8/18/2011	9	144	103.4	103.4	60.7	2.3	74,258	8,697	1.01	2.39	74,218	15.5	60.4	-0.5%	42.2%	63.2%		1.14
	Wk 3	8/24/2011	15	144	161.5	161.5	58.1	2.4	82,434	8,176	0.95	2.35	82,394	23.7	58.0	-0.2%	40.3%	60.5%		1.10
	Wk 4	8/31/2011	22	168	214.3	214.3	52.8	2.4	90,012	7,578	0.75	2.39	89,972	31.2	52.6	-0.3%	31.4%	47.1%		1.10
	Wk 5	9/8/2011	30	192	288.8	288.8	74.5	2.6	101,352	11,340	0.98	2.54	101,312	42.6	75.6	1.5%	38.8%	58.2%		1.13
	Wk 6	9/15/2011	37	168	365.1	365.1	76.3	2.5	112,997	11,645	1.16	2.54	112,957	54.2	76.1	-0.2%	45.4%	68.1%		1.09
	Wk 7	9/22/2011	44	168	436.4	436.4	71.3	2.5	123,841	10,844	1.08	2.53	123,801	65.1	72.3	1.4%	42.4%	63.7%		1.11
	Wk 8	9/28/2011	50	144	492.5	492.5	56.1	2.5	132,387	8,546	0.99	2.54	132,347	73.6	57.0	1.5%	39.0%	58.4%		1.13
	Wk 9	10/5/2011	57	168	569.8	569.8	77.3	2.5	144,138	11,751	1.17	2.53	144,098	85.4	78.3	1.3%	46.0%	69.0%		1.13
	Wk 10	10/13/2011	65	192	629.2	629.2	59.4	2.5	153,299	9,161	0.80	2.57	153,259	94.5	61.1	2.8%	30.9%	46.4%		1.10
	Wk 11	10/20/2011	72	168	676.7	676.7	47.5	2.6	160,697	7,398	0.73	2.60	160,657	101.9	48.4	1.8%	28.3%	42.4%		1.16
	Wk 12	10/27/2011	79	168	754.6	754.6	77.9	2.6	172,662	11,965	1.19	2.56	172,622	113.9	76.7	-1.6%	46.4%	69.6%		1.19
	Wk 13	11/3/2011	86	168	805.1	805.1	50.5	2.5	180,418	7,756	0.77	2.56	180,378	121.6	50.7	0.4%	30.1%	45.1%		1.05
	Wk 14	11/10/2011	93	168	859.9	859.9	54.8	2.5	188,701	8,283	0.82	2.52	188,661	129.9	55.2	0.8%	32.6%	48.9%		1.09
	Wk 15	11/17/2011	100	168	928.0	928.0	68.1	2.5	199,088	10,387	1.03	2.54	199,048	140.3	69.2	1.7%	40.5%	60.8%		1.10
	Wk 16	11/22/2011	105	120	970.2	970.2	42.2	2.5	205,627	6,539	0.91	2.58	205,587	146.9	43.6	3.2%	35.2%	52.8%		1.12
	Wk 17	12/1/2011	114	216	1043.1	1043.1	72.9	2.5	216,612	10,985	0.85	2.51	216,572	157.8	73.2	0.5%	33.7%	50.6%		1.13
	Wk 18	12/7/2011	120	144	1097.6	1097.6	54.5	2.5	225,042	8,430	0.98	2.58	225,002	166.3	56.2	3.1%	37.8%	56.8%		1.17
	Wk 19	12/15/2011	128	192	1147.3	1147.3	49.7	2.6	232,700	7,658	0.66	2.57	232,660	173.9	50.1	0.7%	25.9%	38.8%		1.16
	Wk 20	12/22/2011	135	168	1198.6	1198.6	51.3	2.5	240,538	7,838	0.78	2.55	240,498	181.8	51.2	-0.1%	30.5%	45.8%		1.15
	Wk 22	1/5/2012	149	336	1298.5	1257.5[a]	58.9	2.6	249,543	9,005	0.45	2.55	249,503	190.8	58.9	0.0%	17.5%	26.3%	pump failed; hour meter reading corrected using estimates based on system flow rate and volume[a]	0.59
	Wk 24	1/16/2012	160	264	1398.5	1357.5	100.0	2.5	265,098	15,555	0.98	2.59	265,058	206.3	101.7	1.7%	37.9%	56.8%		1.29
	Wk 25	1/26/2012	170	240	1489.8	1448.8	91.3	2.6	279,302	14,204	0.99	2.59	279,262	220.5	92.8	1.7%	38.0%	57.1%		1.15
	Wk 27	2/6/2012	181	264	1580.5	1539.5	90.7	2.6	293,427	14,125	0.89	2.60	293,387	234.7	90.5	-0.2%	34.4%	51.5%		1.15
	Wk 28	2/14/2012	189	192	1636.7	1595.7	56.2	2.6	302,185	8,758	0.76	2.60	302,145	243.4	56.1	-0.1%	29.3%	43.9%	system shut off from 9:20 on 14-Feb until 17-Feb	1.12
	phase total						**1,595.7**			**243,414**	**0.89**	**2.54**			**1,610.3**		**35.2%**	**52.8%**		**1.09**
Interim Measure Recirculation System Operation	Wk 30	3/2/2012	206	408	1768.6	1727.6	131.9	2.6	322,727	20,542	0.84	2.60	322,687	264.0	131.7	-0.2%	32.3%	48.5%		1.17
	Wk 32	3/15/2012	219	312	1957.4	1760.4[b]	32.8	2.8	328,054	5,327	0.28	2.71	328,014	269.3	32.9	0.3%	10.5%	15.8%	pump failed; hour meter reading corrected using estimates based on system flow rate and volume[b]	0.30
	Wk 35	4/5/2012	240	504	2210.5	1877.5[c]	117.1	2.7	347,393	19,339	0.64	2.75	347,353	288.6	117.2	0.1%	23.2%	34.9%	pump failed; hour meter reading corrected using estimates based on system flow rate and volume[c]	0.59
	Wk 37	4/19/2012	254	336	2346.0	2013.0	135.5	2.6	368,404	21,011	1.04	2.58	368,364	309.6	132.1	-2.5%	40.3%	60.5%		1.13
	Wk 39	5/4/2012	269	360	2496.5	2163.5	150.5	2.6	391,657	23,253	1.08	2.58	391,617	332.9	149.1	-1.0%	41.8%	62.7%		1.12
	Wk 41	5/17/2012	282	312	2601.8	2268.8	105.3	2.6	407,750	16,093	0.86	2.55	407,710	349.0	103.2	-2.1%	33.8%	50.6%		1.06
	Wk 44	6/7/2012	303	504	2778.9	2445.9	177.1	2.5	434,684	26,934	0.89	2.53	434,644	375.9	176.0	-0.6%	35.1%	52.7%		1.07
	Wk 46	6/21/2012	317	336	2932.7	2515.7[d]	69.8	2.6	445,425	10,741	0.53	2.56	445,385	386.7	70.2	0.6%	20.8%	31.2%	pump failed; hour meter reading corrected using estimates based on system flow rate and volume[d]	1.15
	Wk 49	7/10/2012	336	456	3106.7	2689.7	174.0	2.5	471,010	25,585	0.94	2.45	470,970	412.2	167.2	-4.0%	38.2%	57.2%		1.99
	Wk 50	7/19/2012	345	216	3180.9	2763.9	74.2	2.4	481,880	10,870	0.84	2.44	481,840	423.1	73.9	-0.3%	34.4%	51.5%		1.03
	Wk 52	8/2/2012	359	336	3311.7	2894.7	130.8	2.4	500,950	19,070	0.95	2.43	500,910	442.2	132.4	1.2%	38.9%	58.4%		1.12
	Wk 54	8/16/2012	373	336	3438.5	3021.5	126.8	2.5	519,394	18,444	0.91	2.42	519,354	460.6	125.5	-1.1%	37.7%	56.6%		1.14
	Wk 57	9/6/2012	394	504	3605.6	3188.6	167.1	2.4	543,077	23,683	0.78	2.36	543,037	484.3	161.1	-3.7%	33.2%	49.7%		1.20
	phase total			**4,920**			**1,592.9**			**240,892**	**0.82**	**2.52**			**1,572.5**		**32.4%**	**48.6%**		**1.04**
System Operation Overall				**9,456**			**3,188.6**			**484,306**	**0.85**	**2.53**					**33.7%**	**50.6%**		**1.07**

Notes:

1 - Elapsed time is calculated from the number of days between system O&M events; expected to be within a couple of hours.
2 - Hour meter records when power to pump is on. Added to system after the Baseline Flux Assessment phase.
3 - Hour meter reading was adjusted for times when the pump failed but power was available. Comments column notes correction.
4 - Pump operating time (hour meter) is the length of time that the pump operated in this O&M interval.
5 - System flow rate as registered by the flow meter, recorded once per O&M event.
6 - Volume recirculated is calculated from the change in flow totalizer readings between O&M events.
7 - Effective average flow rate is calculated from the volume recirculated and the total elapsed time, including periods of down time.
8 - Average flow rate is the pumping rate, calculated from the volume recirculated and the pump operating time (hour meter). During the Baseline Flux Assessment, since there was no hour meter, the pump operating time was calculated from the estimated time of operation based on the observed flow rate (note 5).
9 - Cumulative volume since start of Baseline Flux Assessment and since start of Main Recirculation System Operation.
10 - Pump operating time (flow rate) is the estimate length of time that the pump operated in this O&M interval, based on the observed System Flow Rate.
11 - Relative percent difference (RPD) between the two estimates of pump operating time, based on system flow rate versus hour meter.
12 - Time Pump Operated is the ratio of Pump Operating Time - Hour Meter to the Elapsed Time. During Baseline Flux Assessment, the Pump Operating Time - Flow Rate is used. A value of 66.6% represents fully operational status, because the system was set to pump for 40 minutes of each hour.
13 - Time Active is the percentage of time during which the system was effectively operating; it includes both the 40 minutes on and 20 minutes off portions of the pump cycle.
14 - Ratio of Time Active compares the Time Active in the upper zone (RW0007) to that in the lower zone (RW0008).

gal - gallon
gpm - gallon per minute
h - hour
kgal - kilogallon
O&M - Operations and Maintenance

a - Wk 22 Correction for Pump Failure (h) =	41
b - Wk 32 Correction for Pump Failure (h) =	156
c - Wk 35 Correction for Pump Failure (h) =	136
d - Wk 46 Correction for Pump Failure (h) =	84

TABLE C-3
HISTORY OF OPERATION FOR EXTRACTION WELL RW0008 (LOWER ZONE)

Phase	O&M Event	Date	Days Elapsed	Elapsed Time Between Events[1] (h)	Actual Hour Meter Reading[2] (h)	Adjusted Hour Meter Reading[3] (h)	Pump Operating Time - Hour Meter[4] (h)	System Flow Rate[5] (gpm)	Flow Totalizer Reading (gal)	Volume Recirculated[6] (gal)	Effective Average Flow Rate[7] (overall) (gal)	Average Flow Rate[8] (gpm)	Total Volume Recirculated (gal)	Cumulative Volume Since Start[9] (kgal)	Pump Operating Time - Flow Rate[10] (h)	RPD[11] (Flow Rate: Hour Meter) (%)	Time Pump Operated[12]	Time Active[13] (%)	Comments	Ratio of Time Active[14] (upper/lower)
Baseline Flux Assessment	--	3/14/2011	0	0	na	na	na	2.3	87				0	0.0					system startup - baseline flux assessment	
	BF Wk 1	3/21/2011	7	168	na	na	na	2.6	14,251	14,164	1.41	2.45	14,164	14.2	96.35		57.4%	86.0%		1.27
	BF Wk 2	3/29/2011	15	192	na	na	na	2.4	25,561	11,310	0.99	2.50	25,474	25.5	76.0		39.6%	59.4%	readings only; no system O&M	1.13
	--	4/1/2011	18	264	na	na	na	2.2	28,078	2,517	0.87	2.40	27,991	28.0	96.02		36.4%	54.6%		1.07
	--	4/4/2011	21	72	na	na	na	2.4	32,094	4,016	0.93	2.30	32,007	32.0	29.10		40.4%	60.6%	readings only; no system O&M	1.28
	BF Wk 3	4/7/2011	24	144	na	na	na	2.5	35,456	3,362	0.85	2.45	35,369	35.4	50.2		34.9%	52.3%		1.34
	BF Wk 4	4/18/2011	35	264	na	na	na	2.2	44,085	8,629	0.54	2.35	43,998	44.0	61.2		23.2%	34.8%		2.06
	phase total			**840**						**43,998**	**0.87**	**2.42**			**302.4**		**36.0%**	**54.0%**		**1.39**
Main Recirculation System Operation	Restart	8/9/2011	0	0	0	0	na	2.8	44,113					0					system restart - main recirculation phase	
	Wk 1	8/12/2011	3	72	45.6	45.6	45.6	2.6	51,232	7,119	1.65	2.60	51,204	7.1	43.9	-3.7%	63.3%	95.0%		0.94
	Wk 2	8/18/2011	9	144	98.9	98.9	53.3	2.6	59,187	7,955	0.92	2.49	59,159	15.1	51.0	-4.4%	37.0%	55.5%		1.14
	Wk 3	8/24/2011	15	144	151.5	151.5	52.6	2.6	67,015	7,828	0.91	2.48	66,987	22.9	50.2	-4.7%	36.5%	54.8%		1.10
	Wk 4	8/31/2011	22	168	199.6	199.6	48.1	2.5	74,235	7,220	0.72	2.50	74,207	30.1	47.2	-1.9%	28.6%	42.9%		1.10
	Wk 5	9/8/2011	30	192	265.7	265.7	66.1	2.6	84,039	9,804	0.85	2.47	84,011	39.9	64.1	-3.1%	34.4%	51.6%		1.13
	Wk 6	9/15/2011	37	168	335.7	335.7	70.0	2.4	94,424	10,385	1.03	2.47	94,396	50.3	69.2	-1.1%	41.7%	62.5%		1.09
	Wk 7	9/22/2011	44	168	400.0	400.0	64.3	2.6	103,828	9,404	0.93	2.44	103,800	59.7	62.7	-2.5%	38.3%	57.4%		1.11
	Wk 8	9/28/2011	50	144	449.5	449.5	49.5	2.6	111,063	7,235	0.84	2.44	111,035	67.0	46.4	-6.5%	34.4%	51.6%		1.13
	Wk 9	10/5/2011	57	168	518.0	518.0	68.5	2.6	121,025	9,962	0.99	2.42	120,997	76.9	63.9	-7.0%	40.8%	61.2%		1.13
	Wk 10	10/13/2011	65	192	571.8	571.8	53.8	2.6	129,060	8,035	0.70	2.49	129,032	84.9	51.5	-4.4%	28.0%	42.0%		1.10
	Wk 11	10/20/2011	72	168	612.7	612.7	40.9	2.6	135,468	6,408	0.64	2.61	135,440	91.4	41.1	0.4%	24.3%	36.5%		1.16
	Wk 12	10/27/2011	79	168	678.4	678.4	65.7	2.6	145,857	10,389	1.03	2.64	145,829	101.7	66.6	1.4%	39.1%	58.7%		1.19
	Wk 13	11/3/2011	86	168	726.5	726.5	48.1	2.6	153,165	7,308	0.73	2.53	153,137	109.1	46.8	-2.6%	28.6%	42.9%		1.05
	Wk 14	11/10/2011	93	168	776.7	776.7	50.2	2.6	160,793	7,628	0.76	2.53	160,765	116.7	48.9	-2.6%	29.9%	44.8%		1.09
	Wk 15	11/17/2011	100	168	838.7	838.7	62.0	2.6	170,200	9,407	0.93	2.53	170,172	126.1	60.3	-2.8%	36.9%	55.4%		1.10
	Wk 16	11/22/2011	105	120	876.3	876.3	37.6	2.5	175,870	5,670	0.79	2.51	175,842	131.8	37.1	-1.4%	31.3%	47.0%		1.12
	Wk 17	12/1/2011	114	216	940.6	940.6	64.3	2.6	185,735	9,865	0.76	2.56	185,707	141.6	64.5	0.3%	29.8%	44.7%		1.13
	Wk 18	12/7/2011	120	144	987.3	987.3	46.7	2.6	193,040	7,305	0.85	2.61	193,012	148.9	46.8	0.3%	32.4%	48.6%		1.17
	Wk 19	12/15/2011	128	192	1030.0	1030.0	42.7	2.6	199,720	6,680	0.58	2.61	199,692	155.6	42.8	0.3%	22.2%	33.4%		1.16
	Wk 20	12/22/2011	135	168	1074.8	1074.8	44.8	2.5	206,694	6,974	0.69	2.59	206,666	162.6	45.6	1.7%	26.7%	40.0%		1.15
	Wk 22	1/5/2012	149	336	1175.3	1175.3	100.5	2.6	222,277	15,583	0.77	2.58	222,249	178.2	101.8	1.3%	29.9%	44.9%		0.59
	Wk 24	1/16/2012	160	264	1252.6	1252.6	77.3	2.5	234,235	11,958	0.75	2.58	234,207	190.1	78.2	1.1%	29.3%	43.9%		1.29
	Wk 25	1/26/2012	170	240	1332.2	1332.2	79.6	2.6	246,358	12,123	0.84	2.54	246,330	202.2	79.2	-0.5%	33.2%	49.8%		1.15
	Wk 27	2/6/2012	181	264	1411.1	1411.1	78.9	2.6	258,227	11,869	0.75	2.51	258,199	214.1	76.1	-3.6%	29.9%	44.8%		1.15
	Wk 28	2/14/2012	189	192	1461.2	1461.2	50.1	2.5	265,760	7,533	0.65	2.51	265,732	221.6	49.2	-1.7%	26.1%	39.1%	system shut off from 9:20 on 14-Feb until 17-Feb	1.12
	phase total			**4,536**			**1,461.2**			**221,647**	**0.81**	**2.53**			**1,435.1**		**32.2%**	**48.3%**		**1.09**
Interim Measure Recirculation System Operation	Wk 30	3/2/2012	206	408	1574.2	1574.2	113.0	2.6	283,067	17,307	0.71	2.55	283,039	239.0	113.1	0.1%	27.7%	41.5%		1.17
	Wk 32	3/15/2012	219	312	1681.9	1681.9	107.7	2.6	299,640	16,573	0.89	2.56	299,612	255.5	106.2	-1.4%	34.5%	51.8%		0.30
	Wk 35	4/5/2012	240	504	1881.4	1881.4	199.5	2.6	330,755	31,115	1.03	2.60	330,727	286.6	199.5	0.0%	39.6%	59.4%		0.59
	Wk 37	4/19/2012	254	336	2001.0	2001.0	119.6	2.5	349,626	18,871	0.94	2.63	349,598	305.5	123.3	3.1%	35.6%	53.4%		1.13
	Wk 39	5/4/2012	269	360	2135.4	2135.4	134.4	2.6	370,668	21,042	0.97	2.61	370,640	326.6	137.5	2.3%	37.3%	56.0%		1.12
	Wk 41	5/17/2012	282	312	2234.7	2234.7	99.3	2.5	386,050	15,382	0.82	2.58	386,022	341.9	100.5	1.2%	31.8%	47.7%		1.06
	Wk 44	6/7/2012	303	504	2400.1	2400.1	165.4	2.5	411,500	25,450	0.84	2.56	411,472	367.4	169.7	2.5%	32.8%	49.2%		1.07
	Wk 46	6/21/2012	317	336	2517.7	2460.7[a]	60.6	2.6	420,846	9,346	0.46	2.57	420,818	376.7	61.1	0.8%	18.0%	27.1%	pump failed; hour meter reading corrected using estimates based on system flow rate and volume[a]	1.15
	Wk 49	7/10/2012	336	456	2681.1	2548.1[b]	87.4	2.6	434,550	13,704	0.50	2.61	434,522	390.4	87.8	0.5%	19.2%	28.8%	pump failed; hour meter reading corrected using estimates based on system flow rate and volume[b]	1.99
	Wk 50	7/19/2012	345	216	2753.0	2620.0	71.9	2.5	445,710	11,160	0.86	2.59	445,682	401.6	72.9	1.4%	33.3%	49.9%		1.03
	Wk 52	8/2/2012	359	336	2870.3	2737.3	117.3	2.5	464,280	18,570	0.92	2.64	464,252	420.2	123.8	5.4%	34.9%	52.4%		1.12
	Wk 54	8/16/2012	373	336	2981.1	2848.1	110.8	2.6	482,120	17,840	0.88	2.68	482,092	438.0	116.6	5.1%	33.0%	49.5%		1.14
	Wk 57	9/6/2012	394	504	3120.5	2987.5	139.4	2.6	504,939	22,819	0.75	2.73	504,911	460.8	146.3	4.8%	27.7%	41.5%		1.20
	phase total			**4,920**			**1,526.3**			**239,179**	**0.81**	**2.61**			**1,558.4**		**31.0%**	**46.5%**		**1.04**
System Operation Overall				**9,456**			**2,987.5**			**460,826**	**0.81**	**2.57**					**31.6%**	**47.4%**		**1.07**

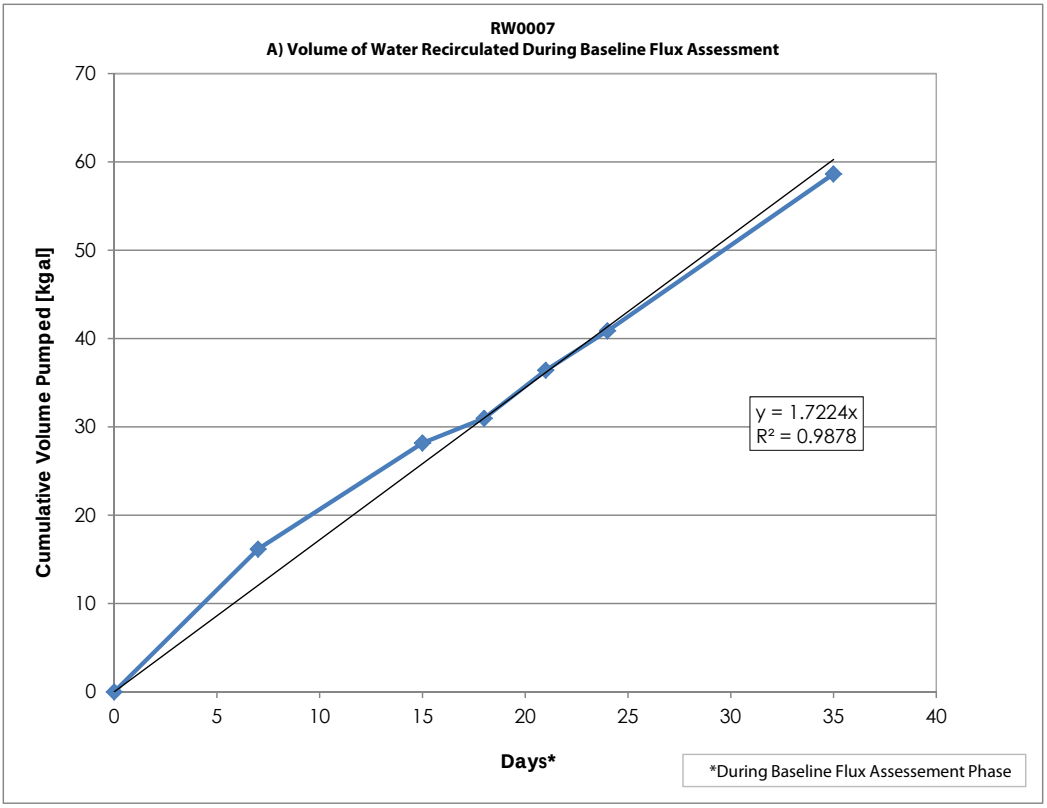
Notes:

1 - Elapsed time is calculated from the number of days between system O&M events; expected to be within a couple of hours.
2 - Hour meter records when power to pump is on. Added to system after the Baseline Flux Assessment phase.
3 - Hour meter reading was adjusted for times when the pump failed but power was available. Comments column notes correction.
4 - Pump operating time (hour meter) is the length of time that the pump operated in this O&M interval.
5 - System flow rate as registered by the flow meter, recorded once per O&M event.
6 - Volume recirculated is calculated from the change in flow totalizer readings between O&M events.
7 - Effective average flow rate is calculated from the volume recirculated and the total elapsed time, including periods of down time.
8 - Average flow rate is the pumping rate, calculated from the volume recirculated and the pump operating time (hour meter). During the Baseline Flux Assessment, since there was no hour meter, the pump operating time was calculated from the estimated time of operation based on the observed flow rate (note 5).
9 - Cumulative volume since start of Baseline Flux Assessment and since start of Main Recirculation System Operation.
10 - Pump operating time (flow rate) is the estimate length of time that the pump operated in this O&M interval, based on the observed System Flow Rate.
11 - Relative percent difference (RPD) between the two estimates of pump operating time, based on system flow rate versus hour meter.
12 - Time Pump Operated is the ratio of Pump Operating Time - Hour Meter to the Elapsed Time. During Baseline Flux Assessment, the Pump Operating Time - Flow Rate is used. A value of 66.6% represents fully operational status, because the system was set to pump for 40 minutes of each hour.
13 - Time Active is the percentage of time during which the system was effectively operating; it includes both the 40 minutes on and 20 minutes off portions of the pump cycle.
14 - Ratio of Time Active compares the Time Active in the upper zone (RW0007) to that in the lower zone (RW0008).

gal - gallon
gpm - gallon per minute
h - hour
kgal - kilogallon
O&M - Operations and Maintenance

a - Wk46 Correction for Pump Failure (h) =	57
b - Wk49 Correction for Pump Failure (h) =	76

FIGURE C-1
VOLUME OF GROUNDWATER RECIRCULATED IN UPPER ZONE (RW0007)



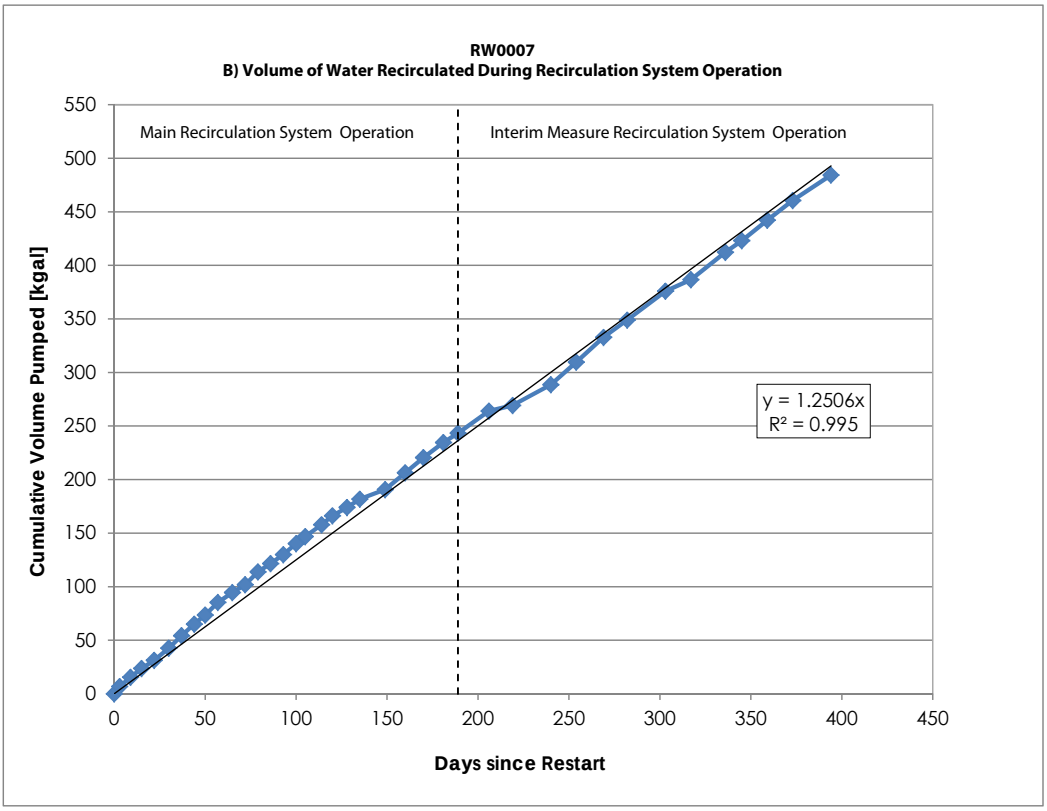
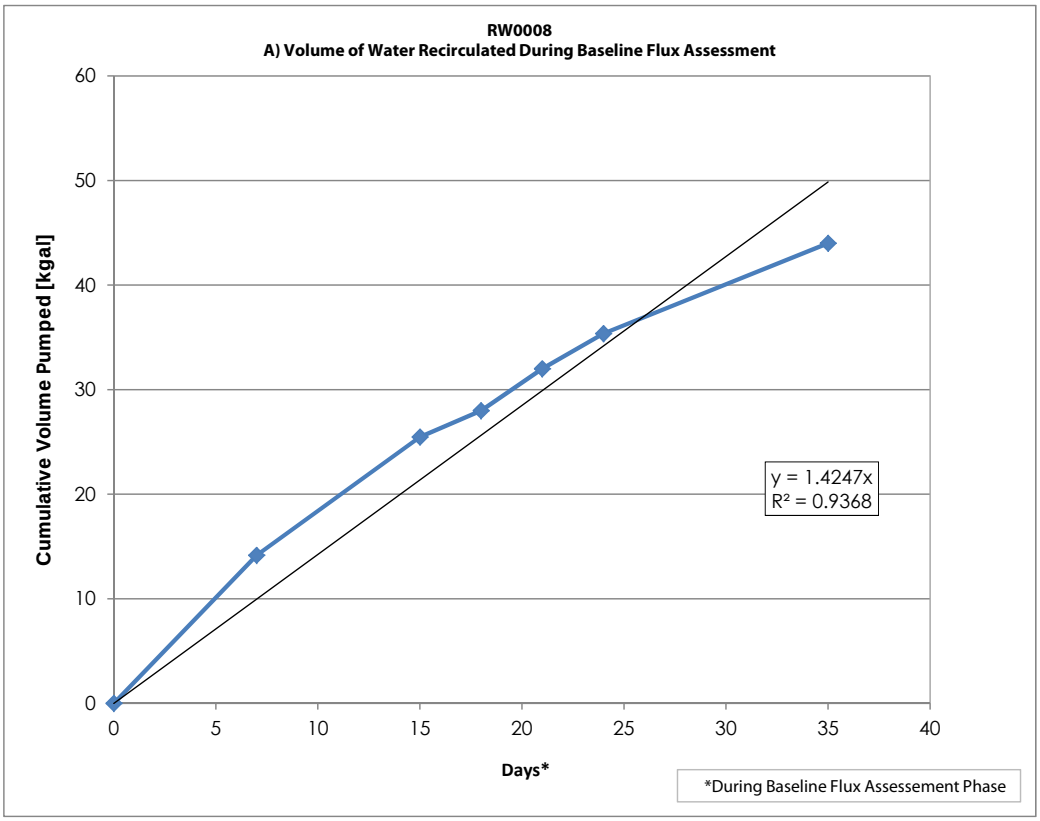
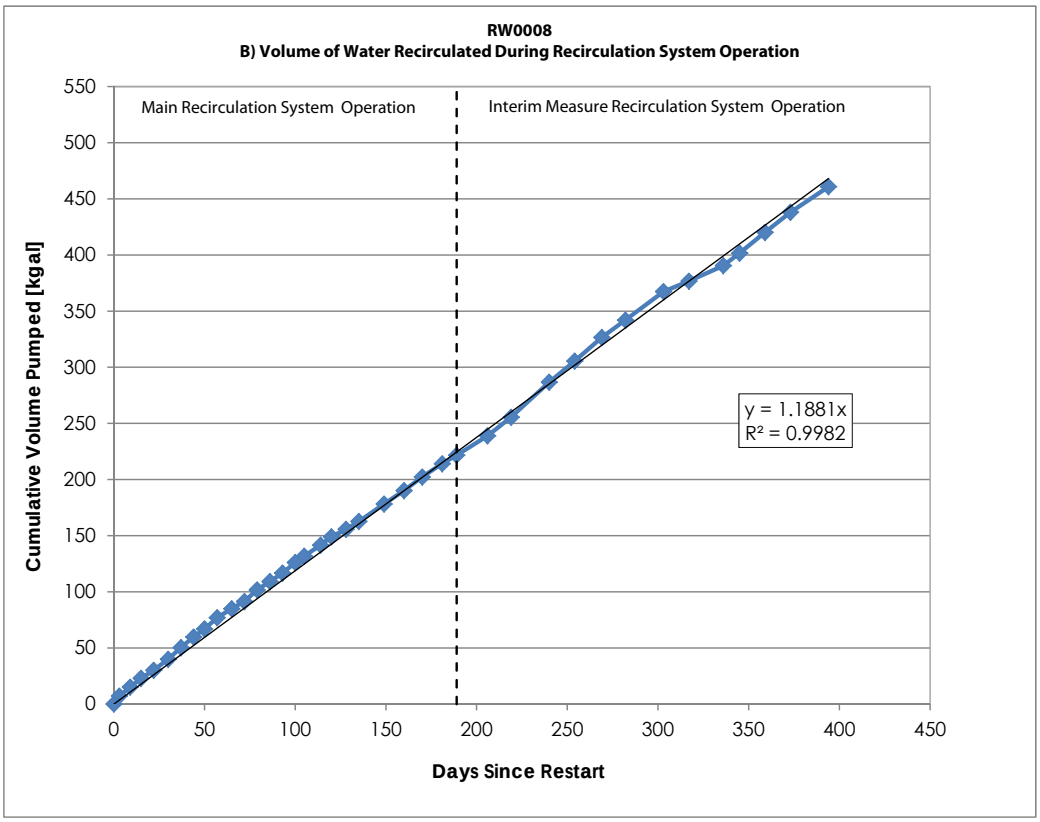
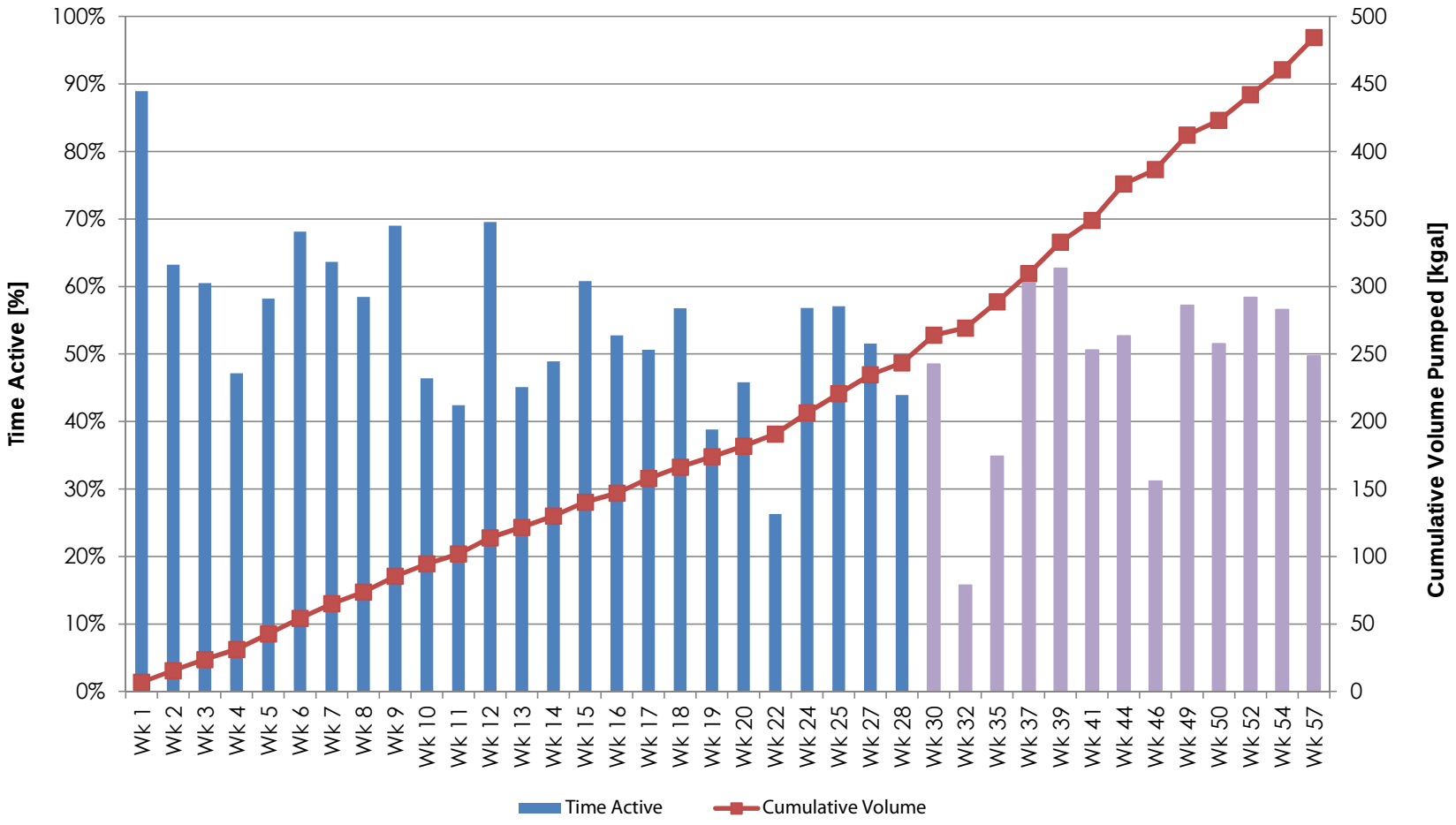


FIGURE C-2
VOLUME OF GROUNDWATER RECIRCULATED IN LOWER ZONE (RW0008)







Notes:

1. Time Active represents the portion of the day in which the system operated. During this time, the pump cycled 40 minutes on, 20 minutes off.

2. The first 28 weeks (blue bars) represent the Main Recirculation System Operation Phase and subsequent weeks (purple bars) represent the Interim Measure Recirculation System Operation Phase.

3. Readings are not evenly distributed over time; less frequent recordings at later time create appearance of greater pumping rate (slope).

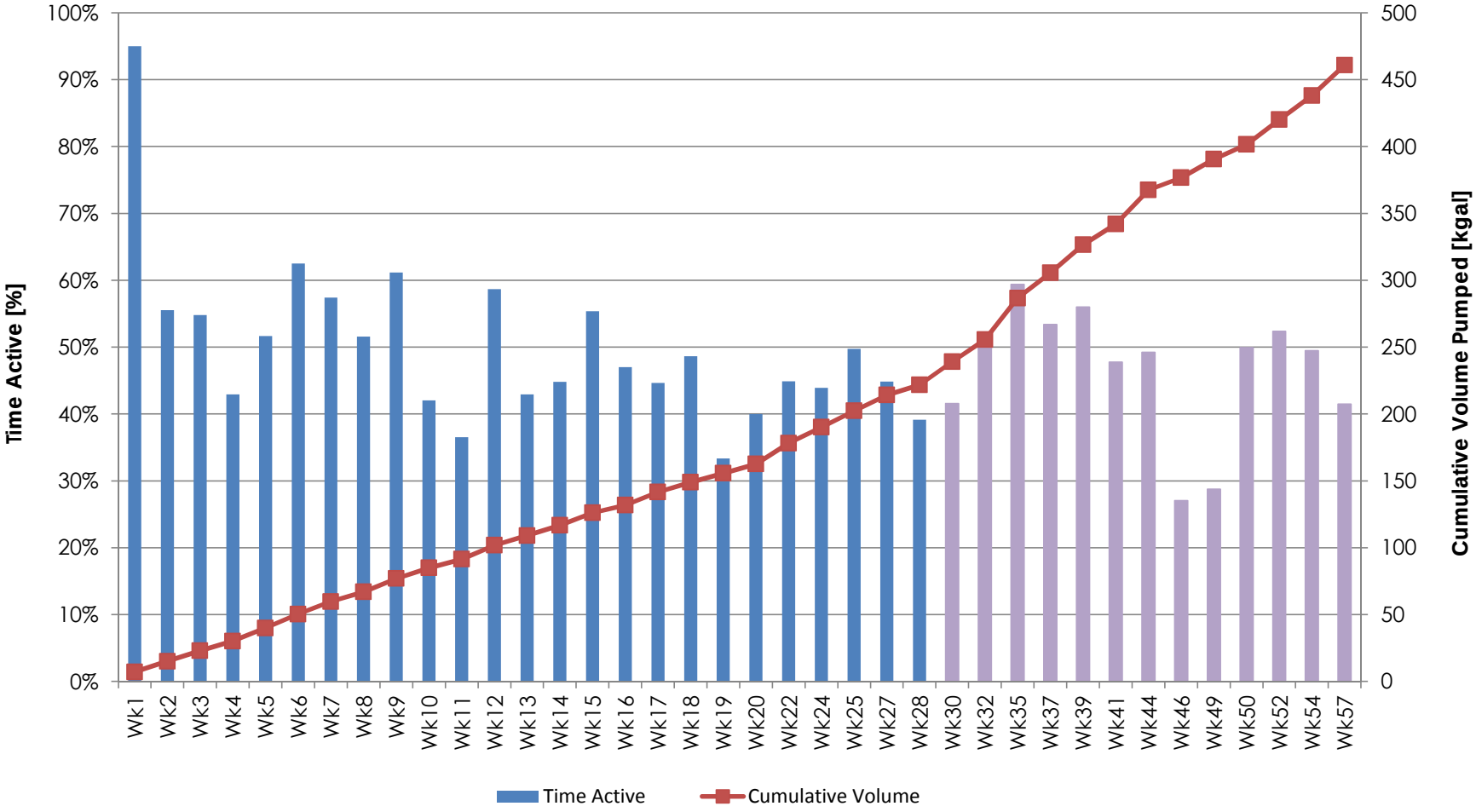
RW0007 Operating History

Launch Complex 34, Cape Canaveral, FL

Guelph | October 2013

Figure C-3

P:\PR\Projects\TR0272 - ESTCP_PED\04 ESTCP Reporting\21 Final Technical Report\05 APPENDICES for FTR\C_Operations Summary\[Operating History_Recirculation Volume Tracking.xlsx]Fig C-3_RW07 Hstry



Notes:

1. Time Active represents the portion of the day in which the system operated. During this time, the pump cycled 40 minutes on, 20 minutes off.

2. The first 28 weeks (blue bars) represent the Main Recirculation System Operation Phase and subsequent weeks (purple bars) represent the Interim Measure Recirculation System Operation Phase.

3. Readings are not evenly distributed over time; less frequent recordings at later time create appearance of greater pumping rate (slope).

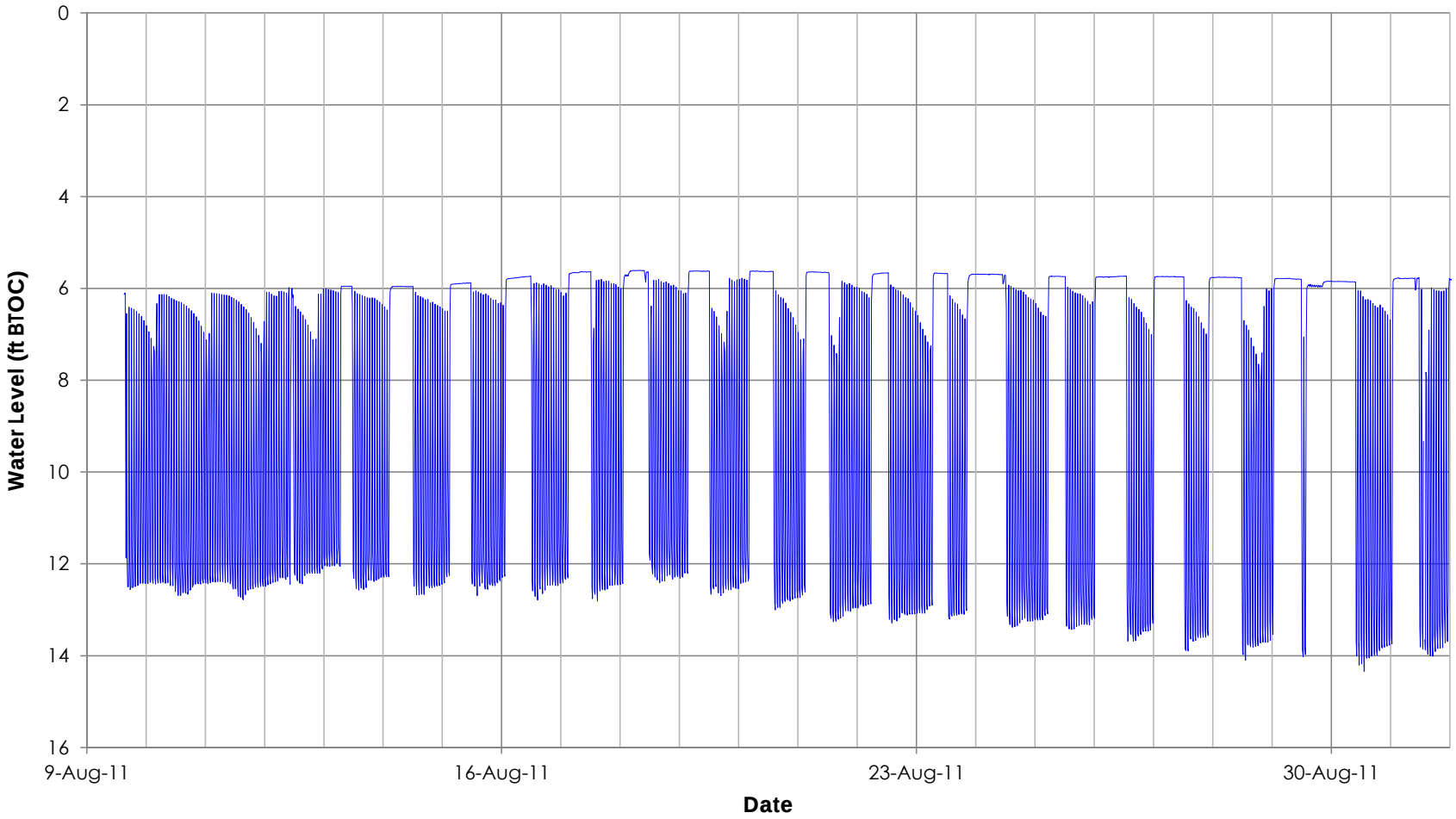
RW0008 Operating History

Launch Complex 34, Cape Canaveral, Fl

Guelph | October 2013

Figure C-4

P:\PR\Projects\TR0272 - ESTCP_PED\04 ESTCP Reporting\21 Final Technical Report\05 APPENDICES for FTR\C_Operations Summary\Operating History, Recirculation Volume Tracking.xlsx]Fig 1



Water Level at Upper Extraction Well (RW0007)

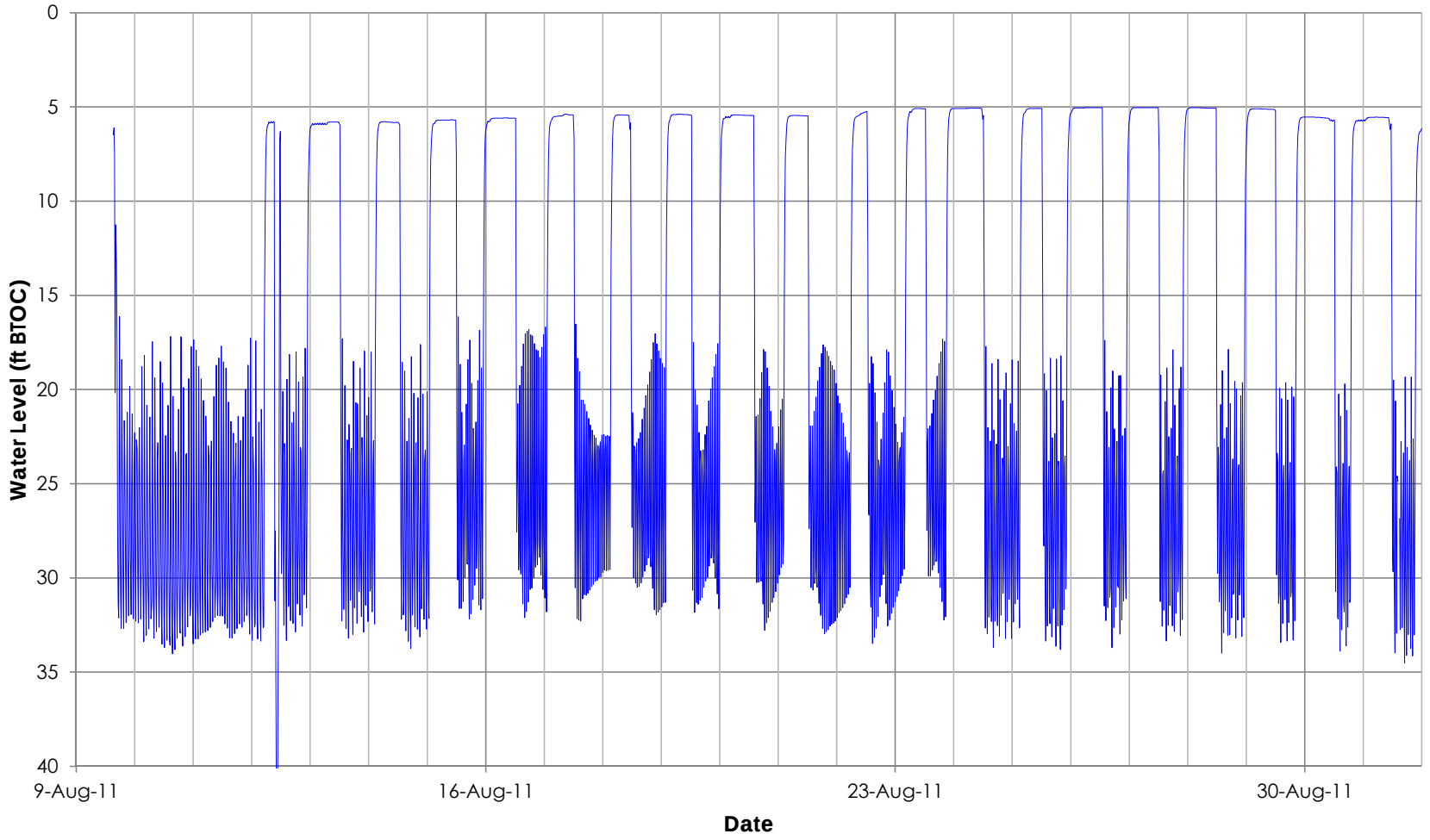
Hot Spot 1, LC34, Cape Canaveral, FL
ESTCP Project ER-0716

Notes:
1. Data for first month of the Main Recirculation Phase is presented here. Additional data is presented in Attachment C-4 in Appendix C.
2. Vertical grid lines mark the start of a new day (12:00 midnight)

ft BTOC - feet below top of casing

		Figure C-5
Guelph	October 2013	

P:\PEJ Projects\TR0272 - ESTCP_PED\04 ESTCP Reporting\21 Final Technical Report\05 APPENDICES for FTR\C_Operations Summary\Attach C-4_Hydrographs\[RW07_through Wt56.xlsx]M1-A1



Water Level at Lower Extraction Well (RW0008)
Hot Spot 1, LC34, Cape Canaveral, FL
ESTCP Project ER-0716

Notes
1. Data for first month of the Main Recirculation Phase is presented here.
   Additional data is presented in Attachment C-4 in Appendix C.
2. Vertical grid lines mark the start of a new day (12:00 midnight)
ft BTOC - feet below top of casing

		Figure C-6
Guelph	October 2013	

P:\PE\Projects\TR0272 - ESTCP_PED\04 ESTCP Reporting\21 Final Technical Report\05 APPENDICES for FTR\C_Operations Summary\Attach C-4_Hydrographs\[RW08_through Wk56.xlsx]M1-A1

Legend

- DPT Groundwater Sampling Location (June 2011)
- Bundle Well Location
- Monitoring Well Location
- Extraction Well Location
- Injection Well Pair Location
- PED Injection Point Location

LC34-IW002I (25-30)
Well Identifier — Screen Interval (ft BLS)

Notes:
1. ft BLS indicates feet below land surface.
2. PED indicates Partioning Electron Donor.

20 10 0 20 Feet

Injection Confirmation Monitoring Locations

Hot Spot 1, LC34, Cape Canaveral, FL / ESTCP Project ER-0716

Geosyntec consultants

Guelph | April 2013

Figure C-7

Path: (Titusville-01\DATA) T:\GIS\FOX55\MXDs\ESTCP_MAR2013\PED_inj_dpt_locs.mxd 05 April 2013 MAH

ATTACHMENT C-1

VIRONEX INJECTION REPORT

Injection Services Report

Prepared for:

Geosyntec consultants

Prepared by:

VIRONEX

LC-34

Cape Canaveral, FL

June 20, 2011 - June 28, 2011

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Injection Logs ..... Appendix A

Project Summary

Project Name: LC-34

Project Dates: June 20, 2011 - June 28, 2011

Manpower: Mike Mazzarese (Project Manager); Austin Hittinger (Field Tech); Jacob Haldiman (Field Tech); George Lujan (National Director of Safety)

Equipment: One (1) Custom Vironex Remediation Platform, One (1) Support Truck and Trailer

Proposed SOW: Vironex will inject 34,000 gallons of n-Butyl Acetate solution (3,000 mg/L) into 20 locations over a 40 ft injection interval (23 ft to 63 ft bgs). Potassium Bromide (60 mg/L) and Potassium Iodide (140 mg/L) will be added to the injection solutions as specified in the RFP (Bromide in all injection solutions, Iodide in injection solution above the clay layer only).

Project Summary: Injection services were initiated on Monday June 20, 2011. Upon arrival to the site Vironex set up a containment pad and ran hoses for the remediation platform. The platform and mixing totes were grounded due to the explosiveness of the reagent that was being injected. Prior to the injections, a water test was performed to check the line pressure and ensure that there were no leaks in the remediation system. Vironex sustained flow rates between 6 and 8 gpm while averaging 30 to 45 psi throughout the injection process. During this event there were two locations that had to be slowed down due to rising water levels in adjacent monitoring wells: location IP-0011 due to response in IW-0002D1 and location IP – 0018 due to response in RW-0008. This injection event was successfully completed on Tuesday June 28, 2011, one day ahead of schedule.

Injection Summary

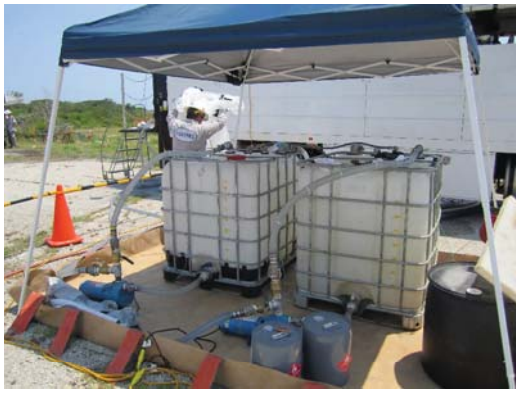
Site LC34 - Cape Canaveral, FL
Injection Summary

	Date	Total nBA Injected (Gal)	Total KBr Injected (g)	Total KI Injected (g)	Total H2O Injected (Gal)	Total Volume Injected (Gal)	Points Completed
Monday	6/20/11	5.8	578.0	1173.0	1694.0	1700.0	1.0
Tuesday	6/21/11	14.4	1445.0	1760.0	4236.0	4250.0	2.5
Wednesday	6/22/11	17.4	1734.0	1759.0	5082.5	5100.0	3.0
Thursday	6/23/11	17.4	1734.0	1759.5	5082.5	5100.0	3.0
Friday	6/24/11	23.1	2318.8	1759.5	6797.0	6820.0	4.0
Monday	6/27/11	20.2	2016.2	1759.0	5910.0	5930.0	3.5
Tuesday	6/28/11	16.7	1734.0	1760.0	5082.0	5100.0	3.0
	Design	115.0	11560.0	11730.0	33885.0	34000.0	20.0
	Injected	115.0	11560.0	11730.0	33884.0	34000.0	20.0
	Daily Average	16.4	1651.4	1675.7	4840.6	4857.1	2.7

Project Photographs

Site Set-up and Tailgate meeting

2 ft Injection tool during water test



Mixing totes and transfer pumps

n Butyl Acetate drum pump in protective vapor shield

Well box locations in the injection area

Injection area

Project Photographs

Injection Rig

Rig Platform

Transfer Line Manifold on top of Progressive Cavity Pump

5 Point Injection Manifold

Gram scale for tracer measurements

Gram Scale

Project Photographs

Copper spike for injection rig grounding wire

Bonding location on injection Rig

Bonding locations on mixing totes

Bonding locations on drum pump and transfer pump

Transfer Pump bonding location

n Butyl Acetate 5 gal. steel drums

Appendix A – Injection Logs

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0001	6/20/11	2:06 PM	6/20/11	2:20 PM	2.0	23'-25'	85	85	20	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	2:20 PM	6/20/11	2:35 PM	2.0	25'-27'	85	170	20	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	2:35 PM	6/20/11	2:50 PM	2.0	27'-29'	85	255	20	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	3:35 PM	6/20/11	3:50 PM	2.0	29'-31'	85	340	25	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	3:50 PM	6/20/11	4:05 PM	2.0	31'-33'	85	425	25	6.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/20/11	4:05 PM	6/20/11	4:20 PM	2.0	33'-35'	85	510	30	6.0	0.289	28.9	58.7	84.7	85	
5.8	6/20/11	4:20 PM	6/20/11	4:35 PM	2.0	35'-37'	85	595	30	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	4:35 PM	6/20/201	4:50 PM	2.0	36.5'-38.5'	85	680	30	6.0	0.289	28.9	58.7	84.7	85	Correct the depth error by completing three 1.5 ft pushes to bring the final depth of the day
Total KBr (g)	6/20/11	4:50 PM	6/20/11	5:05 PM	2.0	38'-41'	85	765	35	6.0	0.289	28.9	58.7	84.7	85	to 41.5 feet bgs.
578.0	6/20/11	5:05 PM	6/20/11	5:08 PM	2.0	39.5'-41.5'	85	850	35	6.0	0.289	28.9	58.7	84.7	85	
	6/21/11	7:50 AM	6/21/11	8:05 AM	2.0	42'-44'	85	935	30	5.8	0.289	28.9		84.7	85	First interval with no Potassium Iodide. First push of the day was 2.5ft to get back
Total KI (g)	6/21/11	8:05 AM	6/21/11	8:20 AM	2.0	44'-46'	85	1,020	38	6.0	0.289	28.9		84.7	85	onto the target depth.
586.5	6/21/11	8:20 AM	6/21/11	8:35 AM	2.0	46'-48'	85	1,105	40	6.0	0.289	28.9		84.7	85	
	6/21/11	8:35 AM	6/21/11	8:50 AM	2.0	48'-50'	85	1,190	40	6.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/21/11	8:50 AM	6/21/11	9:05 AM	2.0	50'-52'	85	1,275	50	8.0	0.289	28.9		84.7	85	Increased flow rates.
1694.2	6/21/11	9:05 AM	6/21/11	9:15 AM	2.0	52'-54'	85	1,360	48	8.2	0.289	28.9		84.7	85	
	6/21/11	9:15 AM	6/21/11	9:25 AM	2.0	54'-56'	85	1,445	45	8.0	0.289	28.9		84.7	85	
Total Volume	6/21/11	9:25 AM	6/21/11	9:35 AM	2.0	56'-58'	85	1,530	45	8.0	0.289	28.9		84.7	85	
1700	6/21/11	9:35 AM	6/21/11	9:45 AM	2.0	58'-60'	85	1,615	50	8.0	0.289	28.9		84.7	85	
	6/21/11	9:45 AM	6/21/11	9:55 AM	2.0	60'-62'	85	1,700	40	8.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.
IP-0002	6/20/11	2:40 PM	6/20/11	3:00 PM	2.0	23'-25'	85	85	18	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	3:00 PM	6/20/11	3:15 PM	2.0	25'-27'	85	170	20	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	3:15 PM	6/20/11	3:30 PM	2.0	27'-29'	85	255	20	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	3:30 PM	6/20/11	3:45 PM	2.0	29'-31'	85	340	20	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	3:45 PM	6/20/11	4:00 PM	2.0	31'-33'	85	425	22	6.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/20/11	4:00 PM	6/20/11	4:15 PM	2.0	33'-35'	85	510	25	6.0	0.289	28.9	58.7	84.7	85	
5.8	6/20/11	4:15 PM	6/20/11	4:30 PM	2.0	35'-37'	85	595	30	6.0	0.289	28.9	58.7	84.7	85	
	6/20/11	4:30 PM	6/20/11	4:45 PM	2.0	36.5'-38.5'	85	680	30	6.0	0.289	28.9	58.7	84.7	85	Correct the depth error by completing three 1.5 ft pushes to bring the final depth of the day
Total KBr (g)	6/20/11	4:45 PM	6/20/11	5:00 PM	2.0	38'-41'	85	765	40	6.0	0.289	28.9	58.7	84.7	85	to 41.5 feet bgs.
578.0	6/20/11	5:00 PM	6/20/11	5:08 PM	2.0	39.5'-41.5'	85	850	40	6.0	0.289	28.9	58.7	84.7	85	
	6/21/11	7:50 AM	6/21/11	8:05 AM	2.0	42'-44'	85	935	20	6.0	0.289	28.9		84.7	85	First interval with no Potassium Iodide. First push of the day was 2.5ft to get back
Total KI (g)	6/21/11	8:05 AM	6/21/11	8:20 AM	2.0	44'-46'	85	1,020	15	6.0	0.289	28.9		84.7	85	onto the target depth.
586.5	6/21/11	8:20 AM	6/21/11	8:35 AM	2.0	46'-48'	85	1,105	18	6.0	0.289	28.9		84.7	85	
	6/21/11	8:35 AM	6/21/11	8:50 AM	2.0	48'-50'	85	1,190	20	6.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/21/11	8:50 AM	6/21/11	9:05 AM	2.0	50'-52'	85	1,275	30	8.0	0.289	28.9		84.7	85	Increased flow rates.
1694.2	6/21/11	9:05 AM	6/21/11	9:15 AM	2.0	52'-54'	85	1,360	45	8.3	0.289	28.9		84.7	85	
	6/21/11	9:15 AM	6/21/11	9:25 AM	2.0	54'-56'	85	1,445	45	8.0	0.289	28.9		84.7	85	
Total Volume	6/21/11	9:25 AM	6/21/11	9:35 AM	2.0	56'-58'	85	1,530	40	8.0	0.289	28.9		84.7	85	
1700	6/21/11	9:35 AM	6/21/11	9:45 AM	2.0	58'-60'	85	1,615	45	8.0	0.289	28.9		84.7	85	
	6/21/11	9:45 AM	6/21/11	9:55 AM	2.0	60'-62'	85	1,700	40	8.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0003	6/21/11	11:35 AM	6/21/11	11:50 AM	2.0	23'-25'	85	85	22	6.0	0.289	28.9	58.7	84.7	85	
	6/21/11	11:50 AM	6/21/11	12:05 PM	2.0	25'-27'	85	170	25	6.0	0.289	28.9	58.7	84.7	85	
	6/21/11	12:05 PM	6/21/11	12:20 PM	2.0	27'-29'	85	255	25	6.0	0.289	28.9	58.7	84.7	85	Took lunch after this interval.
	6/21/11	1:00 PM	6/21/11	1:10 PM	2.0	29'-31'	85	340	35	8.0	0.289	28.9	58.7	84.7	85	
	6/21/11	1:10 PM	6/21/11	1:20 PM	2.0	31'-33'	85	425	35	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/21/11	1:20 PM	6/21/11	1:30 PM	2.0	33'-35'	85	510	40	8.0	0.289	28.9	58.7	84.7	85	
5.8	6/21/11	1:30 PM	6/21/11	1:40 PM	2.0	35'-37'	85	595	38	8.0	0.289	28.9	58.7	84.7	85	
	6/21/11	1:40 PM	6/21/11	1:50 PM	2.0	37'-39'	85	680	38	8.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/21/11	1:55 PM	6/21/11	3:00 PM	2.0	39'-41'	85	765	35	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/21/11	3:00 PM	6/21/11	3:10 PM	2.0	40'-42'	85	850	35	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/22/11	7:40 AM	6/22/11	8:10 AM	2.0	42'-44'	85	935	55	7.5	0.289	28.9		84.7	85	
Total KI (g)	6/22/11	8:10 AM	6/22/11	8:35 AM	2.0	44'-46'	85	1,020	35	5.8	0.289	28.9		84.7	85	
586.5	6/22/11	8:35 AM	6/22/11	8:55 AM	2.0	46'-48'	85	1,105	40	6.0	0.289	28.9		84.7	85	
	6/22/11	8:55 AM	6/22/11	9:20 AM	2.0	48'-50'	85	1,190	40	6.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/22/11	9:20 AM	6/22/11	9:50 AM	2.0	50'-52'	85	1,275	40	6.0	0.289	28.9		84.7	85	
1694.2	6/22/11	9:50 AM	6/22/11	10:25 AM	2.0	52'-54'	85	1,360	40	6.0	0.289	28.9		84.7	85	
	6/22/11	10:25 AM	6/22/11	10:50 AM	2.0	54'-56'	85	1,445	40	6.0	0.289	28.9		84.7	85	
Total Volume	6/22/11	10:50 AM	6/22/11	11:15 AM	2.0	56'-58'	85	1,530	42	6.5	0.289	28.9		84.7	85	
1700	6/22/11	11:15 AM	6/22/11	11:35 AM	2.0	58'-60'	85	1,615	40	6.0	0.289	28.9		84.7	85	
	6/22/11	11:35 AM	6/22/11	12:00 PM	2.0	60'-62'	85	1,700	45	6.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.
IP-0004	6/21/11	11:35 AM	6/21/11	11:50 AM	2.0	23'-25'	85	85	22	6.0	0.289	28.9	58.7	84.7	85	
	6/21/11	11:50 AM	6/21/11	12:05 PM	2.0	25'-27'	85	170	25	6.0	0.289	28.9	58.7	84.7	85	
	6/21/11	12:05 PM	6/21/11	12:20 PM	2.0	27'-29'	85	255	25	6.0	0.289	28.9	58.7	84.7	85	Took lunch between these intervals.
	6/21/11	1:00 PM	6/21/11	1:10 PM	2.0	29'-31'	85	340	35	8.0	0.289	28.9	58.7	84.7	85	
	6/21/11	1:10 PM	6/21/11	1:20 PM	2.0	31'-33'	85	425	35	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/21/11	1:20 PM	6/21/11	1:30 PM	2.0	33'-35'	85	510	40	8.0	0.289	28.9	58.7	84.7	85	
5.8	6/21/11	1:30 PM	6/21/11	1:40 PM	2.0	35'-37'	85	595	38	8.0	0.289	28.9	58.7	84.7	85	
	6/21/11	1:40 PM	6/21/11	1:50 PM	2.0	37'-39'	85	680	38	8.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/21/11	1:55 PM	6/21/11	3:00 PM	2.0	39'-41'	85	765	35	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/21/11	3:00 PM	6/21/11	3:10 PM	2.0	40'-42'	85	850	35	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/22/11	7:40 AM	6/22/11	8:10 AM	2.0	42'-44'	85	935	60	7.0	0.289	28.9		84.7	85	
Total KI (g)	6/22/11	8:10 AM	6/22/11	8:35 AM	2.0	44'-46'	85	1,020	40	5.5	0.289	28.9		84.7	85	
586.5	6/22/11	8:35 AM	6/22/11	8:55 AM	2.0	46'-48'	85	1,105	40	6.0	0.289	28.9		84.7	85	
	6/22/11	8:55 AM	6/22/11	9:20 AM	2.0	48'-50'	85	1,190	40	6.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/22/11	9:20 AM	6/22/11	9:50 AM	2.0	50'-52'	85	1,275	40	6.0	0.289	28.9		84.7	85	
1694.2	6/22/11	9:50 AM	6/22/11	10:25 AM	2.0	52'-54'	85	1,360	40	6.0	0.289	28.9		84.7	85	
	6/22/11	10:25 AM	6/22/11	10:50 AM	2.0	54'-56'	85	1,445	40	6.3	0.289	28.9		84.7	85	
Total Volume	6/22/11	10:50 AM	6/22/11	11:15 AM	2.0	56'-58'	85	1,530	40	6.3	0.289	28.9		84.7	85	
1700	6/22/11	11:15 AM	6/22/11	11:35 AM	2.0	58'-60'	85	1,615	40	6.0	0.289	28.9		84.7	85	
	6/22/11	11:35 AM	6/22/11	12:00 PM	2.0	60'-62'	85	1,700	40	6.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0005	6/21/11	3:45 PM	6/21/11	4:30 PM	5.0	23'-28'	213	213	40	8.0	0.724	72.4	147.0	212.3	213	5 ft. injection tool.
	6/21/11	4:30 PM	6/21/11	5:15 PM	5.0	28'-33'	212	425	40	8.0	0.721	72.1	146.3	211.3	212	
	6/21/11	5:15 PM	6/21/11	6:00 PM	5.0	33'-38'	213	637	40	8.0	0.724	72.4	147.0	212.3	213	
	6/21/11	6:00 PM	6/21/11	6:45 PM	5.0	37'-42'	212	850	40	8.0	0.721	72.1	146.3	211.3	212	4 ft. push to inject in the interval above the clay layer.
	6/22/11	7:35 AM	6/22/11	8:35 AM	5.0	42'-47'	213	1,062	55	6.0	0.721	72.1		211.3	212	
Total nBA (gal) 5.8	6/22/11	8:35 AM	6/22/11	9:50 AM	5.0	47'-52'	212	1,275	45	6.5	0.724	72.4		212.3	213	
	6/22/11	9:50 AM	6/22/11	10:50 AM	5.0	52'-57'	213	1,487	50	6.5	0.721	72.1		211.3	212	
	6/22/11	10:50 AM	6/22/11	11:50 AM	5.0	57'-62'	212	1,700	45	6.5	0.724	72.4		212.3	213	Successfully completed location. Chased with 10 gal. Flush water.
Total KBr (g) 578.0																
Total KI (g) 586.5																
Total H2O (gal) 1694.2																
Total Volume 1700																
IP-0006	6/22/11	2:50 PM	6/22/11	3:25 PM	2.0	23'-25'	85	85	10	3.0	0.289	28.9	58.7	84.7	85	Pumped slow to allow the other location to catch up.
	6/22/11	3:25 PM	6/22/11	3:35 PM	2.0	25'-27'	85	170	35	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	3:35 PM	6/22/11	3:45 PM	2.0	27'-29'	85	255	40	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	3:45 PM	6/22/11	3:55 PM	2.0	29'-31'	85	340	50	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	3:55 PM	6/22/11	4:05 PM	2.0	31'-33'	85	425	45	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal) 5.8	6/22/11	4:05 PM	6/22/11	4:25 PM	2.0	33'-35'	85	510	40	6.0	0.289	28.9	58.7	84.7	85	
	6/22/11	4:25 PM	6/22/11	4:40 PM	2.0	35'-37'	85	595	40	6.0	0.289	28.9	58.7	84.7	85	
	6/22/11	4:40 PM	6/22/11	4:55 PM	2.0	37'-39'	85	680	35	6.0	0.289	28.9	58.7	84.7	85	
Total KBr (g) 578.0	6/22/11	4:55 PM	6/22/11	5:10 PM	2.0	39'-41'	85	765	55	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	5:10 PM	6/22/11	5:25 PM	2.0	40'-42'	85	850	55	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/23/11	7:40 AM	6/23/11	7:50 AM	2.0	42'-44'	85	935	45	8.5	0.289	28.9		84.7	85	
Total KI (g) 586.5	6/23/11	7:50 AM	6/23/11	8:05 AM	2.0	44'-46'	85	1,020	50	7.0	0.289	28.9		84.7	85	
	6/23/11	8:05 AM	6/23/11	11:50 AM	2.0	46'-48'	85	1,105	35	5.0	0.289	28.9		84.7	85	
	6/23/11	11:50 AM	6/23/11	12:00 PM	2.0	48'-50'	85	1,190	50	8.5	0.289	28.9		84.7	85	
Total H2O (gal) 1694.2	6/23/11	12:00 PM	6/23/11	12:15 PM	2.0	50'-52'	85	1,275	45	7.0	0.289	28.9		84.7	85	
	6/23/11	12:15 PM	6/23/11	12:25 PM	2.0	52'-54'	85	1,360	50	8.5	0.289	28.9		84.7	85	
	6/23/11	12:25 PM	6/23/11	12:35 PM	2.0	54'-56'	85	1,445	50	8.5	0.289	28.9		84.7	85	
Total Volume 1700	6/23/11	12:35 PM	6/23/11	12:45 PM	2.0	56'-58'	85	1,530	50	8.5	0.289	28.9		84.7	85	
	6/23/11	12:45 PM	6/23/11	12:55 PM	2.0	58'-60'	85	1,615	50	8.5	0.289	28.9		84.7	85	
	6/23/11	12:55 PM	6/23/11	1:10 PM	2.0	60'-62'	85	1,700	50	8.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0007	6/22/11	3:00 PM	6/22/11	3:25 PM	2.0	23'-25'	85	85	35	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	3:25 PM	6/22/11	3:35 PM	2.0	25'-27'	85	170	35	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	3:35 PM	6/22/11	3:45 PM	2.0	27'-29'	85	255	40	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	3:45 PM	6/22/11	3:55 PM	2.0	29'-31'	85	340	45	8.0	0.289	28.9	58.7	84.7	85	
	6/22/11	3:55 PM	6/22/11	4:05 PM	2.0	31'-33'	85	425	45	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/22/11	4:05 PM	6/22/11	4:25 PM	2.0	33'-35'	85	510	40	6.0	0.289	28.9	58.7	84.7	85	
5.8	6/22/11	4:25 PM	6/22/11	4:40 PM	2.0	35'-37'	85	595	40	6.0	0.289	28.9	58.7	84.7	85	
	6/22/11	4:40 PM	6/22/11	4:55 PM	2.0	37'-39'	85	680	35	6.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/22/11	4:55 PM	6/22/11	5:10 PM	2.0	39'-41'	85	765	55	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/22/11	5:10 PM	6/22/11	5:25 PM	2.0	40'-42'	85	850	55	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/23/11	7:40 AM	6/23/11	7:50 AM	2.0	42'-44'	85	935	38	8.0	0.289	28.9		84.7	85	
Total KI (g)	6/23/11	7:50 AM	6/23/11	8:05 AM	2.0	44'-46'	85	1,020	45	7.0	0.289	28.9		84.7	85	
586.5	6/23/11	8:05 AM	6/23/11	11:50 AM	2.0	46'-48'	85	1,105	35	5.0	0.289	28.9		84.7	85	
	6/23/11	11:50 AM	6/23/11	12:00 PM	2.0	48'-50'	85	1,190	50	8.5	0.289	28.9		84.7	85	
Total H2O (gal)	6/23/11	12:00 PM	6/23/11	12:15 PM	2.0	50'-52'	85	1,275	45	7.0	0.289	28.9		84.7	85	
1694.2	6/23/11	12:15 PM	6/23/11	12:25 PM	2.0	52'-54'	85	1,360	50	8.5	0.289	28.9		84.7	85	
	6/23/11	12:25 PM	6/23/11	12:35 PM	2.0	54'-56'	85	1,445	50	8.5	0.289	28.9		84.7	85	
Total Volume	6/23/11	12:35 PM	6/23/11	12:45 PM	2.0	56'-58'	85	1,530	50	8.5	0.289	28.9		84.7	85	
1700	6/23/11	12:45 PM	6/23/11	12:55 PM	2.0	58'-60'	85	1,615	50	8.5	0.289	28.9		84.7	85	
	6/23/11	12:55 PM	6/23/11	1:10 PM	2.0	60'-62'	85	1,700	50	8.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.
IP-0008	6/22/11	2:40 PM	6/22/11	3:25 PM	5.0	23'-28'	213	213	35	8.0	0.724	72.4	147.0	212.3	213	5 ft. injection tool.
	6/22/11	3:25 PM	6/22/11	3:50 PM	5.0	28'-33'	212	426	45	8.5	0.721	72.1	146.3	211.3	212	
	6/22/11	3:50 PM	6/22/11	4:05 PM	5.0	33'-38'	213	638	50	8.5	0.724	72.4	147.0	212.3	213	
	6/22/11	4:05 PM	6/22/11	4:45 PM	5.0	37'-42'	212	851	50	8.5	0.721	72.1	146.3	211.3	212	4 ft. push to inject in the interval above the clay layer.
	6/23/11	7:40 AM	6/23/11	8:05 AM	5.0	42'-47'	213	1,063	40	8.0	0.721	72.1		211.3	212	
Total nBA (gal)	6/23/11	8:05 AM	6/23/11	12:05 PM	5.0	47'-52'	212	1,276	40	8.5	0.724	72.4		212.3	213	
5.8	6/23/11	12:05 PM	6/23/11	1:00 PM	5.0	52'-57'	212	1,488	8	3.5	0.724	72.4		212.3	213	
	6/23/11	1:00 PM	6/23/11	1:30 PM	5.0	57'-62'	212	1,700	35	7.0	0.721	72.1		211.3	212	Successfully completed location. Chased with 10 gal. Flush water.
Total KBr (g)																
578.0																
Total KI (g)																
586.5																
Total H2O (gal)																
1694.2																
Total Volume																
1700																

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0009	6/23/11	3:15 PM	6/23/11	3:40 PM	2.0	23'-25'	85	85	40	7.5	0.289	28.9	58.7	84.7	85	
	6/23/11	3:40 PM	6/23/11	3:50 PM	2.0	25'-27'	85	170	38	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	3:50 PM	6/23/11	4:00 PM	2.0	27'-29'	85	255	42	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:00 PM	6/23/11	4:10 PM	2.0	29'-31'	85	340	50	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:10 PM	6/23/11	4:20 PM	2.0	31'-33'	85	425	45	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/23/11	4:20 PM	6/23/11	4:30 PM	2.0	33'-35'	85	510	45	8.0	0.289	28.9	58.7	84.7	85	
5.8	6/23/11	4:30 PM	6/23/11	4:40 PM	2.0	35'-37'	85	595	45	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:40 PM	6/23/11	4:50 PM	2.0	37'-39'	85	680	45	8.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/23/11	4:50 PM	6/23/11	5:00 PM	2.0	39'-41'	85	765	45	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/23/11	5:00 PM	6/23/11	5:10 PM	2.0	40'-42'	85	850	45	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/24/11	7:20 AM	6/24/11	7:35 AM	2.0	42'-44'	85	935	38	6.0	0.289	28.9		84.7	85	
Total KI (g)	6/24/11	7:35 AM	6/24/11	7:50 AM	2.0	44'-46'	85	1,020	40	6.0	0.289	28.9		84.7	85	
586.5	6/24/11	7:50 AM	6/24/11	8:00 AM	2.0	46'-48'	85	1,105	40	6.5	0.289	28.9		84.7	85	
	6/24/11	8:00 AM	6/24/11	8:10 AM	2.0	48'-50'	85	1,190	45	6.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/24/11	8:10 AM	6/24/11	8:20 AM	2.0	50'-52'	85	1,275	50	8.4	0.289	28.9		84.7	85	
1694.2	6/24/11	8:20 AM	6/24/11	8:30 AM	2.0	52'-54'	85	1,360	50	8.5	0.289	28.9		84.7	85	
	6/24/11	8:30 AM	6/24/11	8:40 AM	2.0	54'-56'	85	1,445	50	8.5	0.289	28.9		84.7	85	
Total Volume	6/24/11	8:40 AM	6/24/11	8:50 AM	2.0	56'-58'	85	1,530	45	8.5	0.289	28.9		84.7	85	
1700	6/24/11	8:50 AM	6/24/11	9:00 AM	2.0	58'-60'	85	1,615	45	8.5	0.289	28.9		84.7	85	
	6/24/11	9:00 AM	6/24/11	9:20 AM	2.0	60'-62'	85	1,700	45	8.5	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.
IP-0010	6/23/11	3:05 PM	6/23/11	3:45 PM	2.0	23'-25'	85	85	40	7.5	0.289	28.9	58.7	84.7	85	
	6/23/11	3:45 PM	6/23/11	3:55 PM	2.0	25'-27'	85	170	40	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	3:55 PM	6/23/11	4:05 PM	2.0	27'-29'	85	255	50	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:05 PM	6/23/11	4:15 PM	2.0	29'-31'	85	340	40	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:15 PM	6/23/11	4:25 PM	2.0	31'-33'	85	425	40	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/23/11	4:25 PM	6/23/11	4:35 PM	2.0	33'-35'	85	510	40	8.0	0.289	28.9	58.7	84.7	85	
5.8	6/23/11	4:35 PM	6/23/11	4:45 PM	2.0	35'-37'	85	595	45	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:45 PM	6/23/11	4:55 PM	2.0	37'-39'	85	680	45	8.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/23/11	4:55 PM	6/23/11	5:05 PM	2.0	39'-41'	85	765	45	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/23/11	5:05 PM	6/23/11	5:15 PM	2.0	40'-42'	85	850	45	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/24/11	7:20 AM	6/24/11	7:38 AM	2.0	42'-44'	85	935	38	6.0	0.289	28.9		84.7	85	
Total KI (g)	6/24/11	7:38 AM	6/24/11	5:52 AM	2.0	44'-46'	85	1,020	40	6.0	0.289	28.9		84.7	85	
586.5	6/24/11	7:52 AM	6/24/11	8:02 AM	2.0	46'-48'	85	1,105	40	6.0	0.289	28.9		84.7	85	
	6/24/11	8:02 AM	6/24/11	8:12 AM	2.0	48'-50'	85	1,190	45	6.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/24/11	8:12 AM	6/24/11	8:22 AM	2.0	50'-52'	85	1,275	52	8.5	0.289	28.9		84.7	85	
1694.2	6/24/11	8:22 AM	6/24/11	8:32 AM	2.0	52'-54'	85	1,360	50	8.5	0.289	28.9		84.7	85	
	6/24/11	8:32 AM	6/24/11	8:42 AM	2.0	54'-56'	85	1,445	50	8.5	0.289	28.9		84.7	85	
Total Volume	6/24/11	8:42 AM	6/24/11	8:52 AM	2.0	56'-58'	85	1,530	50	8.5	0.289	28.9		84.7	85	
1700	6/24/11	8:52 AM	6/24/11	9:02 AM	2.0	58'-60'	85	1,615	45	8.5	0.289	28.9		84.7	85	
	6/24/11	9:02 AM	6/24/11	9:20 AM	2.0	60'-62'	85	1,700	40	8.5	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0011	6/23/11	3:20 PM	6/23/11	3:50 PM	2.0	23'-25'	85	85	40	7.5	0.289	28.9	58.7	84.7	85	
	6/23/11	3:50 PM	6/23/11	4:00 PM	2.0	25'-27'	85	170	35	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:00 PM	6/23/11	4:10 PM	2.0	27'-29'	85	255	32	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:10 PM	6/23/11	4:20 PM	2.0	29'-31'	85	340	40	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:20 PM	6/23/11	4:30 PM	2.0	31'-33'	85	425	40	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/23/11	4:30 PM	6/23/11	4:40 PM	2.0	33'-35'	85	510	40	8.0	0.289	28.9	58.7	84.7	85	
5.8	6/23/11	4:40 PM	6/23/11	4:50 PM	2.0	35'-37'	85	595	45	8.0	0.289	28.9	58.7	84.7	85	
	6/23/11	4:50 PM	6/23/11	5:00 PM	2.0	37'-39'	85	680	45	8.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/23/11	5:00 PM	6/23/11	5:10 PM	2.0	39'-41'	85	765	45	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/23/11	5:10 PM	6/23/11	5:35 PM	2.0	40'-42'	85	850	45	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/24/11	7:25 AM	6/24/11	7:40 AM	2.0	42'-44'	85	935	38	6.0	0.289	28.9		84.7	85	
Total KI (g)	6/24/11	7:40 AM	6/24/11	7:55 AM	2.0	44'-46'	85	1,020	40	6.0	0.289	28.9		84.7	85	
586.5	6/24/11	7:55 AM	6/24/11	8:05 AM	2.0	46'-48'	85	1,105	40	7.0	0.289	28.9		84.7	85	
	6/24/11	8:05 AM	6/24/11	8:20 AM	2.0	48'-50'	85	1,190	30	4.5	0.289	28.9		84.7	85	Slowed down to avoid surfacing from a well 1.5 ft away screened at the same depth.
Total H2O (gal)	6/24/11	8:20 AM	6/24/11	8:30 AM	2.0	50'-52'	85	1,275	50	8.3	0.289	28.9		84.7	85	
1694.2	6/24/11	8:30 AM	6/24/11	8:40 AM	2.0	52'-54'	85	1,360	50	8.5	0.289	28.9		84.7	85	
	6/24/11	8:40 AM	6/24/11	8:50 AM	2.0	54'-56'	85	1,445	45	8.5	0.289	28.9		84.7	85	
Total Volume	6/24/11	8:50 AM	6/24/11	9:00 AM	2.0	56'-58'	85	1,530	45	8.5	0.289	28.9		84.7	85	
1700	6/24/11	9:00 AM	6/24/11	9:10 AM	2.0	58'-60'	85	1,615	40	8.5	0.289	28.9		84.7	85	
	6/24/11	9:10 AM	6/24/11	9:20 AM	2.0	60'-62'	85	1,700	40	8.5	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. Flush water.
IP-0012	6/24/11	11:00 AM	6/24/11	11:15 AM	2.0	23'-25'	85	85	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	11:20 AM	6/24/11	11:30 AM	2.0	25'-27'	85	170	40	7.5	0.289	28.9	58.7	84.7	85	
	6/24/11	11:30 AM	6/24/11	11:40 AM	2.0	27'-29'	85	255	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	11:40 AM	6/24/11	12:15 PM	2.0	29'-31'	85	340	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	12:15 PM	6/24/11	12:25 PM	2.0	31'-33'	85	425	40	8.0	0.289	28.9	58.7	84.7	85	Took lunch during this interval.
Total nBA (gal)	6/24/11	12:25 PM	6/24/11	12:35 PM	2.0	33'-35'	85	510	40	8.5	0.289	28.9	58.7	84.7	85	
5.8	6/24/11	12:35 PM	6/24/11	12:45 PM	2.0	35'-37'	85	595	40	8.5	0.289	28.9	58.7	84.7	85	
	6/24/11	12:45 PM	6/24/11	12:55 PM	2.0	37'-39'	85	680	40	8.5	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/24/11	12:55 PM	6/24/11	1:05 PM	2.0	39'-41'	85	765	40	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/24/11	1:05 PM	6/24/11	1:15 PM	2.0	40'-42'	85	850	40	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/24/11	1:40 PM	6/24/11	1:50 PM	2.0	42'-44'	85	935	25	6.0	0.289	28.9		84.7	85	
Total KI (g)	6/24/11	1:50 PM	6/24/11	2:47 PM	2.0	44'-46'	85	1,020	20	6.5	0.289	28.9		84.7	85	Stopped pumping to repair a leak in the system.
586.5	6/24/11	2:47 PM	6/24/11	2:57 PM	2.0	46'-48'	85	1,105	20	6.5	0.289	28.9		84.7	85	
	6/24/11	2:57 PM	6/24/11	3:07 PM	2.0	48'-50'	85	1,190	30	7.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/24/11	3:07 PM	6/24/11	3:17 PM	2.0	50'-52'	85	1,275	35	7.0	0.289	28.9		84.7	85	
1694.2	6/24/11	3:17 PM	6/24/11	3:27 PM	2.0	52'-54'	85	1,360	45	8.0	0.289	28.9		84.7	85	
	6/24/11	3:27 PM	6/27/11	7:20 AM	2.0	54'-56'	85	1,445	45	8.0	0.289	28.9		84.7	85	Ended the day early due to Phase 2 lightning warning.
Total Volume	6/27/11	7:20 AM	6/27/11	7:30 AM	2.0	56'-58'	85	1,530	35	8.0	0.289	28.9		84.7	85	
1700	6/27/11	7:30 AM	6/27/11	7:40 AM	2.0	58'-60'	85	1,615	40	7.8	0.289	28.9		84.7	85	
	6/27/11	7:40 AM	6/27/11	3:25 PM	2.0	60'-62'	85	1,700	40	7.8	0.289	28.9		84.7	85	Hit Refusal at 61 ft bgs. Successfully completed location. Chased with 10 gal. flush water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0013	6/24/11	11:05 AM	6/24/11	11:20 AM	2.0	23'-25'	85	85	40	7.0	0.289	28.9	58.7	84.7	85	
	6/24/11	11:20 AM	6/24/11	11:33 AM	2.0	25'-27'	85	170	40	7.5	0.289	28.9	58.7	84.7	85	
	6/24/11	11:33 AM	6/24/11	11:43 AM	2.0	27'-29'	85	255	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	11:43 AM	6/24/11	11:53 AM	2.0	29'-31'	85	340	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	12:15 PM	6/24/11	12:25 PM	2.0	31'-33'	85	425	40	8.0	0.289	28.9	58.7	84.7	85	Took lunch during this interval.
Total nBA (gal)	6/24/11	12:25 PM	6/24/11	12:35 PM	2.0	33'-35'	85	510	40	8.0	0.289	28.9	58.7	84.7	85	
5.8	6/24/11	12:35 PM	6/24/11	12:45 PM	2.0	35'-37'	85	595	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	12:45 PM	6/24/11	12:55 PM	2.0	37'-39'	85	680	40	8.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/24/11	12:55 PM	6/24/11	1:05 PM	2.0	39'-41'	85	765	40	8.0	0.289	28.9	58.7	84.7	85	
578.0	6/24/11	1:05 PM	6/24/11	1:15 PM	2.0	40'-42'	85	850	40	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/24/11	1:40 PM	6/24/11	1:50 PM	2.0	42'-44'	85	935	40	6.0	0.289	28.9		84.7	85	
Total KI (g)	6/24/11	1:50 PM	6/24/11	2:50 PM	2.0	44'-46'	85	1,020	40	6.0	0.289	28.9		84.7	85	Stopped pumping to repair a leak in the system.
586.5	6/24/11	2:50 PM	6/24/11	3:00 PM	2.0	46'-48'	85	1,105	40	6.0	0.289	28.9		84.7	85	
	6/24/11	3:00 PM	6/24/11	3:10 PM	2.0	48'-50'	85	1,190	45	7.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/24/11	3:10 PM	6/24/11	3:20 PM	2.0	50'-52'	85	1,275	45	7.0	0.289	28.9		84.7	85	
1694.2	6/24/11	3:20 PM	6/24/11	3:30 PM	2.0	52'-54'	85	1,360	45	7.0	0.289	28.9		84.7	85	
	6/24/11	3:30 PM	6/27/11	7:22 AM	2.0	54'-56'	85	1,445	45	7.8	0.289	28.9		84.7	85	Ended the day early due to Phase 2 lightning warning.
Total Volume	6/27/11	7:22 AM	6/27/11	7:32 AM	2.0	56'-58'	85	1,530	45	8.0	0.289	28.9		84.7	85	
1700	6/27/11	7:32 AM	6/27/11	7:45 AM	2.0	58'-60'	85	1,615	45	7.8	0.289	28.9		84.7	85	
	6/27/11	7:45 AM	6/27/11	8:00 AM	2.0	60'-62'	85	1,700	45	8.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. flush water.
IP-0014	6/24/11	11:15 AM	6/24/11	11:27 AM	2.0	23'-25'	85	85	40	7.6	0.289	28.9	58.7	84.7	85	
	6/24/11	11:27 AM	6/24/11	11:37 AM	2.0	25'-27'	85	170	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	11:37 AM	6/24/11	11:47 AM	2.0	27'-29'	85	255	40	8.0	0.289	28.9	58.7	84.7	85	Took lunch during this interval.
	6/24/11	12:15 PM	6/24/11	12:25 PM	2.0	29'-31'	85	340	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	12:25 PM	6/24/11	12:35 PM	2.0	31'-33'	85	425	40	8.0	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/24/11	12:35 PM	6/24/11	12:45 PM	2.0	33'-35'	85	510	40	8.0	0.289	28.9	58.7	84.7	85	
5.8	6/24/11	12:45 PM	6/24/11	12:55 PM	2.0	35'-37'	85	595	40	8.0	0.289	28.9	58.7	84.7	85	
	6/24/11	12:55 PM	6/24/11	1:05 PM	2.0	37'-39'	85	680	40	8.0	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/24/11	1:05 PM	6/24/11	1:15 PM	2.0	39'-41'	85	765	40	8.5	0.289	28.9	58.7	84.7	85	
578.0	6/24/11	1:15 PM	6/24/11	1:25 PM	2.0	40'-42'	85	850	40	8.0	0.289	28.9	58.7	84.7	85	1 ft. push to inject in the foot above the clay layer.
	6/24/11	1:25 PM	6/24/11	1:50 PM	2.0	42'-44'	85	935	40	6.0	0.289	28.9		84.7	85	
Total KI (g)	6/24/11	1:50 PM	6/24/11	2:55 PM	2.0	44'-46'	85	1,020	40	6.0	0.289	28.9		84.7	85	Stopped pumping to fix a leak in the injection system.
586.5	6/24/11	2:55 PM	6/24/11	3:05 PM	2.0	46'-48'	85	1,105	40	6.5	0.289	28.9		84.7	85	
	6/24/11	3:05 PM	6/24/11	3:15 PM	2.0	48'-50'	85	1,190	40	6.5	0.289	28.9		84.7	85	
Total H2O (gal)	6/24/11	3:15 PM	6/24/11	3:25 PM	2.0	50'-52'	85	1,275	45	7.0	0.289	28.9		84.7	85	
1694.2	6/24/11	3:25 PM	6/24/11	3:35 PM	2.0	52'-54'	85	1,360	45	7.0	0.289	28.9		84.7	85	
	6/24/11	3:35 PM	6/24/11	7:25 AM	2.0	54'-56'	85	1,445	45	7.5	0.289	28.9		84.7	85	Ended the day early due to Phase 2 lightning warning.
Total Volume	6/27/11	7:25 AM	6/27/11	7:35 AM	2.0	56'-58'	85	1,530	45	7.8	0.289	28.9		84.7	85	
1700	6/27/11	7:35 AM	6/27/11	7:48 AM	2.0	58'-60'	85	1,615	45	7.8	0.289	28.9		84.7	85	
	6/27/11	7:48 AM	6/27/11	8:00 AM	2.0	60'-62'	85	1,700	45	8.0	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. flush water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0015	6/27/11	9:55 AM	6/27/11	10:20 AM	2.0	23'-25'	85	85	15	4.0	0.289	28.9	58.7	84.7	85	
	6/27/11	10:20 AM	6/27/11	10:31 AM	2.0	25'-27'	85	170	30	7.8	0.289	28.9	58.7	84.7	85	
	6/27/11	10:31 AM	6/27/11	10:43 AM	2.0	27'-29'	85	255	35	8.3	0.289	28.9	58.7	84.7	85	
	6/27/11	10:43 AM	6/27/11	10:53 AM	2.0	29'-31'	85	340	40	8.5	0.289	28.9	58.7	84.7	85	
	6/27/11	10:53 AM	6/27/11	11:12 AM	2.0	31'-33'	85	425	40	8.5	0.289	28.9	58.7	84.7	85	Paused to change out an electrical cable.
Total nBA (gal)	6/27/11	11:12 AM	6/27/11	11:22 AM	2.0	33'-35'	85	510	40	8.5	0.289	28.9	58.7	84.7	85	
5.8	6/27/11	11:22 AM	6/27/11	11:32 AM	2.0	35'-37'	85	595	40	8.5	0.289	28.9	58.7	84.7	85	
	6/27/11	11:32 AM	6/27/11	11:42 AM	2.0	37'-39'	85	680	40	8.5	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/27/11	11:42 AM	6/27/11	11:52 AM	2.0	39'-41'	85	765	45	8.5	0.289	28.9	58.7	84.7	85	
578.0	6/27/11	11:52 AM	6/27/11	12:02 PM	2.0	40'-42'	85	850	45	8.5	0.289	28.9	58.7	84.7	85	Paused after this interval to take lunch. 1 ft. push to inject in the foot above the clay layer.
	6/27/11	12:40 PM	6/27/11	12:53 PM	2.0	42'-44'	85	935	40	7.2	0.289	28.9		84.7	85	
Total KI (g)	6/27/11	12:53 PM	6/27/11	1:05 PM	2.0	44'-46'	85	1,020	30	6.0	0.289	28.9		84.7	85	
586.5	6/27/11	1:05 PM	6/27/11	1:18 PM	2.0	46'-48'	85	1,105	35	5.8	0.289	28.9		84.7	85	
	6/27/11	1:18 PM	6/27/11	1:30 PM	2.0	48'-50'	85	1,190	35	6.0	0.289	28.9		84.7	85	
Total H2O (gal)	6/27/11	1:32 PM	6/27/11	1:43 PM	2.0	50'-52'	85	1,275	35	5.3	0.289	28.9		84.7	85	
1694.2	6/27/11	1:43 PM	6/27/11	2:05 PM	2.0	52'-54'	85	1,360	35	4.0	0.289	28.9		84.7	85	
	6/27/11	2:05 PM	6/27/11	2:20 PM	2.0	54'-56'	85	1,445	35	4.3	0.289	28.9		84.7	85	
Total Volume	6/27/11	2:20 PM	6/27/11	2:32 PM	2.0	56'-58'	85	1,530	35	4.2	0.289	28.9		84.7	85	
1700	6/27/11	2:32 PM	6/27/11	2:43 PM	2.0	58'-60'	85	1,615	45	7.6	0.289	28.9		84.7	85	
	6/27/11	2:43 PM	6/27/11	2:57 PM	2.0	60'-62'	85	1,700	45	7.7	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. flush water.
IP-0016	6/27/11	10:00 AM	6/27/11	10:25 AM	2.0	23'-25'	85	85	15	4.0	0.289	28.9	58.7	84.7	85	
	6/27/11	10:25 AM	6/27/11	10:36 AM	2.0	25'-27'	85	170	40	7.5	0.289	28.9	58.7	84.7	85	
	6/27/11	10:36 AM	6/27/11	10:46 AM	2.0	27'-29'	85	255	40	8.2	0.289	28.9	58.7	84.7	85	
	6/27/11	10:46 AM	6/27/11	11:05 AM	2.0	29'-31'	85	340	40	8.5	0.289	28.9	58.7	84.7	85	
	6/27/11	10:56 AM	6/27/11	11:13 AM	2.0	31'-33'	85	425	40	8.2	0.289	28.9	58.7	84.7	85	Paused to change out an electrical cable.
Total nBA (gal)	6/27/11	11:13 AM	6/27/11	11:24 AM	2.0	33'-35'	85	510	40	8.4	0.289	28.9	58.7	84.7	85	
5.8	6/27/11	11:24 AM	6/27/11	11:34 AM	2.0	35'-37'	85	595	40	8.4	0.289	28.9	58.7	84.7	85	
	6/27/11	11:34 AM	6/27/11	11:44 AM	2.0	37'-39'	85	680	40	8.5	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/27/11	11:44 AM	6/27/11	11:54 AM	2.0	39'-41'	85	765	45	8.5	0.289	28.9	58.7	84.7	85	
578.0	6/27/11	11:54 AM	6/27/11	12:04 PM	2.0	40'-42'	85	850	45	8.5	0.289	28.9	58.7	84.7	85	Paused for lunch after this interval. 1 ft. push to inject in the foot above the clay layer.
	6/27/11	12:45 PM	6/27/11	12:58 PM	2.0	42'-44'	85	935	40	7.2	0.289	28.9		84.7	85	
Total KI (g)	6/27/11	12:58 PM	6/27/11	1:10 PM	2.0	44'-46'	85	1,020	40	6.0	0.289	28.9		84.7	85	
586.5	6/27/11	1:10 PM	6/27/11	1:23 PM	2.0	46'-48'	85	1,105	40	5.5	0.289	28.9		84.7	85	
	6/27/11	1:23 PM	6/27/11	1:35 PM	2.0	48'-50'	85	1,190	40	6.1	0.289	28.9		84.7	85	
Total H2O (gal)	6/27/11	1:35 PM	6/27/11	1:55 PM	2.0	50'-52'	85	1,275	45	5.3	0.289	28.9		84.7	85	
1694.2	6/27/11	1:55 PM	6/27/11	2:10 PM	2.0	52'-54'	85	1,360	35	4.0	0.289	28.9		84.7	85	
	6/27/11	2:10 PM	6/27/11	2:25 PM	2.0	54'-56'	85	1,445	30	4.0	0.289	28.9		84.7	85	
Total Volume	6/27/11	2:25 PM	6/27/11	2:37 PM	2.0	56'-58'	85	1,530	30	4.3	0.289	28.9		84.7	85	
1700	6/27/11	2:37 PM	6/27/11	2:50 PM	2.0	58'-60'	85	1,615	45	7.5	0.289	28.9		84.7	85	
	6/27/11	2:50 PM	6/27/11	3:04 PM	2.0	60'-62'	85	1,700	45	7.7	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. flush water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0017	6/27/11	10:10 AM	6/27/11	10:28 AM	2.0	23'-25'	85	85	15	4.0	0.289	28.9	58.7	84.7	85	
	6/27/11	10:28 AM	6/27/11	10:39 AM	2.0	25'-27'	85	170	40	7.7	0.289	28.9	58.7	84.7	85	
	6/27/11	10:39 AM	6/27/11	10:49 AM	2.0	27'-29'	85	255	40	8.5	0.289	28.9	58.7	84.7	85	
	6/27/11	10:49 AM	6/27/11	11:08 AM	2.0	29'-31'	85	340	40	8.5	0.289	28.9	58.7	84.7	85	Paused to change out an electrical cable.
	6/27/11	11:08 AM	6/27/11	11:20 AM	2.0	31'-33'	85	425	40	8.5	0.289	28.9	58.7	84.7	85	
Total nBA (gal)	6/27/11	11:20 AM	6/27/11	11:30 AM	2.0	33'-35'	85	510	40	8.5	0.289	28.9	58.7	84.7	85	
5.8	6/27/11	11:30 AM	6/27/11	11:40 AM	2.0	35'-37'	85	595	40	8.5	0.289	28.9	58.7	84.7	85	
	6/27/11	11:40 AM	6/27/11	11:50 AM	2.0	37'-39'	85	680	40	8.5	0.289	28.9	58.7	84.7	85	
Total KBr (g)	6/27/11	11:50 AM	6/27/11	12:00 PM	2.0	39'-41'	85	765	40	8.5	0.289	28.9	58.7	84.7	85	
578.0	6/27/11	12:00 PM	6/27/11	12:10 PM	2.0	40'-42'	85	850	40	8.5	0.289	28.9	58.7	84.7	85	Paused for lunch after this interval. 1 ft. push to inject in the foot above the clay layer.
	6/27/11	12:00 AM	6/27/11	1:05 PM	2.0	42'-44'	85	935	40	7.1	0.289	28.9		84.7	85	
Total KI (g)	6/27/11	1:05 PM	6/27/11	1:18 PM	2.0	44'-46'	85	1,020	35	6.0	0.289	28.9		84.7	85	
586.5	6/27/11	1:18 PM	6/27/11	1:30 PM	2.0	46'-48'	85	1,105	40	6.0	0.289	28.9		84.7	85	
	6/27/11	1:30 PM	6/27/11	1:43 PM	2.0	48'-50'	85	1,190	40	6.3	0.289	28.9		84.7	85	
Total H2O (gal)	6/27/11	1:43 PM	6/27/11	1:53 PM	2.0	50'-52'	85	1,275	45	8.5	0.289	28.9		84.7	85	
1694.2	6/27/11	1:53 PM	6/27/11	2:03 PM	2.0	52'-54'	85	1,360	45	8.5	0.289	28.9		84.7	85	
	6/27/11	2:03 PM	6/27/11	2:13 PM	2.0	54'-56'	85	1,445	45	8.5	0.289	28.9		84.7	85	
Total Volume	6/27/11	2:13 PM	6/27/11	2:23 PM	2.0	56'-58'	85	1,530	45	8.5	0.289	28.9		84.7	85	
1700	6/27/11	2:23 PM	6/27/11	2:33 PM	2.0	58'-60'	85	1,615	45	8.5	0.289	28.9		84.7	85	
	6/27/11	2:33 PM	6/27/11	2:43 PM	2.0	60'-62'	85	1,700	45	8.5	0.289	28.9		84.7	85	Successfully completed location. Chased with 10 gal. flush water.
IP-0018	6/28/11	8:55 AM	6/28/11	9:10 AM	2.0	23'-25'	85	85	25	6.0	0.280	28.9	58.7	84.7	85	
	6/28/11	9:10 AM	6/28/11	9:28 AM	2.0	25'-27'	85	170	30	7.0	0.280	28.9	58.7	84.7	85	
	6/28/11	9:28 AM	6/28/11	9:38 AM	2.0	27'-29'	85	255	32	8.5	0.280	28.9	58.7	84.7	85	
	6/28/11	9:38 AM	6/28/11	9:48 AM	2.0	29'-31'	85	340	35	8.5	0.280	28.9	58.7	84.7	85	
	6/28/11	9:48 AM	6/28/11	9:58 AM	2.0	31'-33'	85	425	40	8.5	0.280	28.9	58.7	84.7	85	
Total nBA (gal)	6/28/11	9:58 AM	6/28/11	10:10 AM	2.0	33'-35'	85	510	38	8.0	0.280	28.9	58.7	84.7	85	
5.6	6/28/11	10:10 AM	6/28/11	10:22 AM	2.0	35'-37'	85	595	35	8.0	0.280	28.9	58.7	84.7	85	
	6/28/11	10:22 AM	6/28/11	10:34 AM	2.0	37'-39'	85	680	40	8.1	0.280	28.9	58.7	84.7	85	
Total KBr (g)	6/28/11	10:34 AM	6/28/11	10:45 AM	2.0	39'-41'	85	765	45	8.5	0.280	28.9	58.7	84.7	85	
578.0	6/28/11	10:45 AM	6/28/11	10:55 AM	2.0	40'-42'	85	850	45	8.5	0.280	28.9	58.7	84.7	85	Took Lunch after this interval. 1 ft. push to inject in the foot above the clay layer.
	6/28/11	11:30 AM	6/28/11	11:43 AM	2.0	42'-44'	85	935	40	6.0	0.280	28.9		84.7	85	
Total KI (g)	6/28/11	11:43 AM	6/28/11	11:57 AM	2.0	44'-46'	85	1,020	40	6.0	0.280	28.9		84.7	85	
586.5	6/28/11	11:57 AM	6/28/11	12:11 PM	2.0	46'-48'	85	1,105	40	6.0	0.280	28.9		84.7	85	
	6/28/11	12:11 PM	6/28/11	12:21 PM	2.0	48'-50'	85	1,190	45	8.5	0.280	28.9		84.7	85	
Total H2O (gal)	6/28/11	12:21 PM	6/28/11	12:35 PM	2.0	50'-52'	85	1,275	40	6.0	0.280	28.9		84.7	85	Lowered the gpm to slow the rise in water on a well. (RW-8)
1694.4	6/28/11	12:35 PM	6/28/11	12:49 PM	2.0	52'-54'	85	1,360	40	6.3	0.280	28.9		84.7	85	
	6/28/11	12:49 PM	6/28/11	1:00 PM	2.0	54'-56'	85	1,445	43	6.5	0.280	28.9		84.7	85	
Total Volume	6/28/11	1:00 PM	6/28/11	1:13 PM	2.0	56'-58'	85	1,530	40	6.0	0.280	28.9		84.7	85	
1700	6/28/11	1:13 PM	6/28/11	1:26 PM	2.0	58'-60'	85	1,615	35	6.0	0.280	28.9		84.7	85	
	6/28/11	1:26 PM	6/28/11	1:50 PM	2.0	60'-62'	85	1,700	40	6.3	0.280	28.9		84.7	85	Successfully completed location. Chased with 35 gal. chase water.

Vironex Field Data Sheet

Injection Point ID	Start Date	Start Time	End Date	End Time	Tool Length (ft)	Injection Interval	Gal per Interval	Running Total	Average PSI	Average Flow Rate	nBA Injected (gal)	KBr Injected (grams)	KI Injected (grams)	H2O Injected (gal)	Amended Total Gal	Notes
IP-0019	6/28/11	9:00 AM	6/28/11	9:15 AM	2.0	23'-25'	85	85	23	6.0	0.280	28.9	58.7	84.7	85	
	6/28/11	9:15 AM	6/28/11	9:29 AM	2.0	25'-27'	85	170	35	7.2	0.280	28.9	58.7	84.7	85	
	6/28/11	9:29 AM	6/28/11	9:40 AM	2.0	27'-29'	85	255	35	8.2	0.280	28.9	58.7	84.7	85	
	6/28/11	9:40 AM	6/28/11	9:50 AM	2.0	29'-31'	85	340	40	8.5	0.280	28.9	58.7	84.7	85	
	6/28/11	9:50 AM	6/28/11	10:03 AM	2.0	31'-33'	85	425	40	8.0	0.280	28.9	58.7	84.7	85	
Total nBA (gal)	6/28/11	10:03 AM	6/28/11	10:15 AM	2.0	33'-35'	85	510	38	8.0	0.280	28.9	58.7	84.7	85	
5.6	6/28/11	10:15 AM	6/28/11	10:27 AM	2.0	35'-37'	85	595	40	8.0	0.280	28.9	58.7	84.7	85	
	6/28/11	10:27 AM	6/28/11	10:38 AM	2.0	37'-39'	85	680	30	7.8	0.280	28.9	58.7	84.7	85	
Total KBr (g)	6/28/11	10:38 AM	6/28/11	10:48 AM	2.0	39'-41'	85	765	40	8.5	0.280	28.9	58.7	84.7	85	
578.0	6/28/11	10:48 AM	6/28/11	10:58 AM	2.0	40'-42'	85	850	45	8.5	0.280	28.9	58.7	84.7	85	Took lunch after this interval. 1 ft. push to inject in the foot above the clay layer.
	6/28/11	11:32 AM	6/28/11	11:45 AM	2.0	42'-44'	85	935	43	6.0	0.280	28.9		84.7	85	
Total KI (g)	6/28/11	11:45 AM	6/28/11	11:59 AM	2.0	44'-46'	85	1,020	40	6.0	0.280	28.9		84.7	85	
586.5	6/28/11	11:59 AM	6/28/11	12:13 PM	2.0	46'-48'	85	1,105	38	6.0	0.280	28.9		84.7	85	
	6/28/11	12:13 PM	6/28/11	12:23 PM	2.0	48'-50'	85	1,190	45	8.5	0.280	28.9		84.7	85	
Total H2O (gal)	6/28/11	12:23 PM	6/28/11	12:33 PM	2.0	50'-52'	85	1,275	45	8.5	0.280	28.9		84.7	85	
1694.4	6/28/11	12:33 PM	6/28/11	12:43 PM	2.0	52'-54'	85	1,360	45	8.5	0.280	28.9		84.7	85	
	6/28/11	12:43 PM	6/28/11	12:54 PM	2.0	54'-56'	85	1,445	45	8.5	0.280	28.9		84.7	85	
Total Volume	6/28/11	12:54 PM	6/28/11	1:04 PM	2.0	56'-58'	85	1,530	45	8.5	0.280	28.9		84.7	85	
1700	6/28/11	1:06 PM	6/28/11	1:17 PM	2.0	58'-60'	85	1,615	45	8.5	0.280	28.9		84.7	85	
	6/28/11	1:17 PM	6/28/11	1:27 PM	2.0	60'-62'	85	1,700	45	8.5	0.280	28.9		84.7	85	Successfully completed location. Chased with 35 gal. chase water.
IP-0020	6/28/11	9:05 AM	6/28/11	9:25 AM	2.0	23'-25'	85	85	30	7.0	0.280	28.9	58.7	84.7	85	
	6/28/11	9:25 AM	6/28/11	9:35 AM	2.0	25'-27'	85	170	35	8.5	0.280	28.9	58.7	84.7	85	
	6/28/11	9:35 AM	6/28/11	9:45 AM	2.0	27'-29'	85	255	40	8.5	0.280	28.9	58.7	84.7	85	
	6/28/11	9:45 AM	6/28/11	9:55 AM	2.0	29'-31'	85	340	45	8.5	0.280	28.9	58.7	84.7	85	
	6/28/11	9:55 AM	6/28/11	10:07 AM	2.0	31'-33'	85	425	45	8.2	0.280	28.9	58.7	84.7	85	
Total nBA (gal)	6/28/11	10:07 AM	6/28/11	10:19 AM	2.0	33'-35'	85	510	43	8.0	0.280	28.9	58.7	84.7	85	
5.6	6/28/11	10:19 AM	6/28/11	10:30 AM	2.0	35'-37'	85	595	45	8.3	0.280	28.9	58.7	84.7	85	
	6/28/11	10:30 AM	6/28/11	10:40 AM	2.0	37'-39'	85	680	45	8.5	0.280	28.9	58.7	84.7	85	
Total KBr (g)	6/28/11	10:40 AM	6/28/11	10:50 AM	2.0	39'-41'	85	765	45	8.5	0.280	28.9	58.7	84.7	85	
578.0	6/28/11	10:50 AM	6/28/11	11:00 AM	2.0	40'-42'	85	850	45	8.5	0.280	28.9	58.7	84.7	85	Took lunch after this interval. 1 ft. push to inject in the foot above the clay layer.
	6/28/11	11:34 AM	6/28/11	11:47 AM	2.0	42'-44'	85	935	38	6.0	0.280	28.9		84.7	85	
Total KI (g)	6/28/11	11:47 AM	6/28/11	12:00 PM	2.0	44'-46'	85	1,020	40	6.0	0.280	28.9		84.7	85	
586.5	6/28/11	12:00 PM	6/28/11	12:14 PM	2.0	46'-48'	85	1,105	40	6.0	0.280	28.9		84.7	85	
	6/28/11	12:14 PM	6/28/11	12:24 PM	2.0	48'-50'	85	1,190	45	8.0	0.280	28.9		84.7	85	
Total H2O (gal)	6/28/11	12:24 PM	6/28/11	12:34 PM	2.0	50'-52'	85	1,275	45	8.0	0.280	28.9		84.7	85	
1694.4	6/28/11	12:34 PM	6/28/11	12:44 PM	2.0	52'-54'	85	1,360	45	8.0	0.280	28.9		84.7	85	
	6/28/11	12:44 PM	6/28/11	12:54 PM	2.0	54'-56'	85	1,445	45	8.0	0.280	28.9		84.7	85	
Total Volume	6/28/11	12:54 PM	6/28/11	1:04 PM	2.0	56'-58'	85	1,530	45	8.5	0.280	28.9		84.7	85	
1700	6/28/11	1:04 PM	6/28/11	1:14 PM	2.0	58'-60'	85	1,615	45	8.5	0.280	28.9		84.7	85	
	6/28/11	1:14 PM	6/28/201	1:30 PM	2.0	60'-62'	85	1,700	45	7.7	0.280	28.9		84.7	85	Successfully completed location. Chased with 35 gal. chase water.

Avg	Avg	nBA	KBr	KI	H2O	Total Gal	Points Completed
39.7	7.3	115.0	11,560.0	11,730.0	33,885.0	34,000.0	20.0

ATTACHMENT C-2

FIELD FORMS

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of

Project: ~~FA~~ LCJ4 ESTCP PED
Project No.: TR0272
Contractors: EDS - Mike Miller, Cory Love, Carl Leonhardt

Date: 1/17/2011
Task No.:

Work Performed

Well Installation: X - HSA
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0715 - arrive @ badging station - pick paperwork
0745 - on site - badging office closed - extra hr for badges
0850 - called duty office to verify on site dig
- tailgate mtg
- FEC on site - dirt in bottom of rolloff
1130 - tornado warning - parked up off of left for lunch - Covered rolloff & removed back.
1245 - back on site - call weather - another tornado warning to be issued & should be in phase 2 - remainder of day
1300 - left site

Plans/Future Activities

- only partially installed PW0022 - got through sand seal will complete tomorrow

Signature/Date 1/17/11

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: ESTCP - PED
Project No.: JR0272
Contractors: EDS - Mike Miller, Cory Cave, Carl Lenhart

Date: 11/1/2011
Task No.:

Work Performed

Well Installation: X - HSA
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0700 - @ badging station - meet drillers
0720 - on site - call Dig safe - OK to dig
0725 - tail gate meeting
- completed install of IW 0021 & IW 0022
- begin split spoon sample @ RW location b/c cannot have DPT rig & HSA rig in same area due to space concerns
- 1030 - Emily Walkley w/ St Johns River WMD onsite to GPS well locations - we were split spoon sampling location for RW 0008 → inbound mail well permit not issued yet ⇒ cannot install well - left augers in ground @ ~ 20ft BLS & moved to injection well location
1100 - left site for lunch & Joe & I went to POL for spill pallet
1215 - back onsite

Plans/Future Activities

1700 - left site
- installed injection well IJ 0017, IJ 0018, IJ 0019, IJ 0020

11/1/2011
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LCP4 Date: 1/19/2011
Project No.: TR0272 Task No.:
Contractors: EDS - Mike Miller, Cory Cove, Carl Leonhardt, Chris Phipps, Heath Olson
UD Labs - Glen Parkson

Work Performed

Well Installation:	X	Sampling Soil:	
Soil Borings:	X	Sampling SW/Sediment:	
DPT:		Sampling Monitor Wells:	
Well Inventory:		Sampling Hazardous Waste:	
Other:		Sampling Drums:	

Observations/Issues of Concern

0725 - onsite - EDS onsite
0750 - called duty officer on to dig ⇒ tailgate
0815 - can brake PIDs - 590-000317 MiniRAE Lite
0ppm → 0ppm
100ppm → 100.2 ppm
- 590-000309 MiniRAE Lite
0ppm → 0ppm
100ppm → 100.0 ppm
1030 - auger rig down - sheared pin - Joe & Mike off site to find parts
1200 - Joe & Mike back onsite
~1000 - Emily from JT RWTP onsite w/ permit for recovery wells
1200 - Neil & Joe offsite for lunch & to get spill permit

Plans/Future Activities

* SD0002 & SD0003 ⇒ grain size & TOC from 27-29 ft BLS collected @ 1629
* SD0001 & SD0003 ⇒ grain size & TOC & Tecolids from 33-35 ft BLS collected @ 1646 (grain size from SD0002 only)
~~* SD0003-0410 @ 1320 = DNC sample from~~ NS Did not send sample

1/20/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC24
Project No.: TR0272
Contractors: Sam ar Pj

Date: 1/19/11
Task No.:

Work Performed

Well Installation: X
Soil Borings: X
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

- Samples SD1001-044.5-20110119 @ 1656 - DHC
- SD1003 & SD1002 - grain size (SD1002), TOC & % solids from 47 to 48 @ 1657
- " SD1003 & SD1002 - grain size (SD1002), TOC & % solids from 52 to 54 @ 1720
- SD1003 - 043.5 - DHC @ 1657
- SD1003 - 046.0 - DHC @ 1700
- SD1002 - 046.0 - DHC @ 1700
- SD1002 - 043.5 - DHC @ 1657

- left site @ 1745 - back to base
- filled out COCs & organized samples - left at 1915

Plans/Future Activities

- completed 3 DPT soil borings @ locations for DW0001, DW0002, DW0003
- split spoon not completed b/c auger rig broke down
- installed RW0008

1/19/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 3

Project: EJTCP PED 4054
Project No.: TR0272
Contractors: FDS - Mike Miller, Cory Cook, Carl Leonhardt, Chris Phillips, Hans Olsen
Date: 1/20/11
Task No.:

Work Performed

Well Installation: X DPT & HSA
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0720 - onsite
0730 - tailgate
0755 - called duty officer on to fix
calibrate PID SN# 520-000-309 SN# 520-000-317 (Mini Rae Lite)
0 ppm 0 ppm 0 ppm 0 ppm
100 ppm 99.9 ppm 100 ppm 100.0

- FDS didn't have 1ft PVC riser ⇒ we charged contractor at 58-61 & 51-54 ft wells
* 58-61 ft will have 10ft risr pipe above screen & then two bentonite sleeves
* 51-54 will have 2.5 ft risr pipe & the two bentonite sleeves → 2.5ft risr pipe declined on Monday
- Hovering air around DPT during well install - running PID continuously

Plans/Future Activities

Calibrate turbidity meter - LaMotte 2020

	initial	final
1.0	1.04	1.03
10.0	10.08	10.05

Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: EDSCP PED LCSM
Project No.: TR0272
Contractors: same as page 1

Date: 1/20
Task No.: 1

Work Performed

Well Installation: X Well development
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

- Developed injection well IJ0020 - using submersible pump ~1-2 gpm started @ 1316 stopped @ 1343 ~25 gallons - turbid
- Developed injection well IJ0019 - started @ 1344 stopped 1359 ~~1359~~ 15-20 gallons removed - turbid
- ~1430 take DUFZ onsite
- Developed injection well IJ0012 - started @ 1525 stopped @ 1539 - had to move generator & power from battery started @ 1550; stopped @ 1556 ~25 gal - cleared quickly
- Developed injection well IJ0017 - started @ 1600 stopped @ 1616 ~12 gallons

Plans/Future Activities

- Developed injection well IJ0022 started @ 1621 stopped @ 1641 ~20 gal
- ~~Developed injection well IJ0021 started @~~

1/20
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 3 of 3

Project: KOCH PEDLOW
Project No.: TR0272
Contractors: Sam ow fg +

Date: 1/20
Task No.:

Work Performed

Well Installation: X 2 well development
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

- Developed RW0008 - switch to - rinsed 18 gal → will complete tomorrow

left site 1715

Plans/Future Activities

- need to develop EJ0019 & EJ0020 more

Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: ESTCP PED LCSM
Project No.: TR0472
Contractors: EDS - Mike Miller, Cory Cone, Carl Leonhardt, Chris Phillips Beth Olson
Date: 1/21
Task No.:

Work Performed

Well Installation: X + well development
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0720 - ONSITE EDS ONSITE
0725 - CALLED DUTY OFFICE ON TO DEC
PARKING RAIN - DEVELOPED WELLS & STARTED INSTALLING VAULT BOXES WITH PAVED
- DEVELOPED INJ0021 - SUBMERSIBLE PUMP ~ 20min ~ 20 gal
- DEVELOPED INJ0022 INJ0020 FURTHER - ~ 10 gal from INJ0020 & ~ 7 gal from INJ0019
- left site for lunch 1200 return 1300
- DEVELOPED INJ0014 started @ 1316 stopped @ 1341 ~ 30 gal removed
DEVELOPED INJ0013 started @ 1343 stopped @ 1357
DEVELOPED INJ0016 started @ 1405 stopped @ 1432 removed ~ 30 gal
DEVELOPED INJ0015 started @ 1438 stopped @ 1510 removed ~ 35 gal

Plans/Future Activities

- completed vault box install & pad on INJ0013 & INJ0014
- completed development of all INJECTION WELLS
- completed development of deep recovery well

1/21
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: ESTCP CC34 Date: 1/27/11
Project No.: TR0372 Task No.: 04
Contractors: EDS (Mike, Coy, Carl, Keith, Chris)

Work Performed

Well Installation: BW0001 E, BW0003BC, BW0003E Sampling Soil: Roll-off
Soil Borings: Sampling SW/Sediment:
DPT: Sampling Monitor Wells:
Well Inventory: Sampling Hazardous Waste:
Other: Develop RW0007 + Bundle wells. Sampling Drums:

Observations/Issues of Concern

0615 Arrive @ Titusville office. Calibrate YSIs & load vehicles
0730 Arrive on site. Both drill crews onsite.
0745 Tailgate safety meeting. Call Pat's office & confirm disposal #
0800 Drillers develop BW0001 clear, while installing BW0003BC+E wells.
Haller Stem drillers begin pad forming at ~~ES~~ injection wells
& set up to develop RW0007
0845 Take composite sample from roll off.
0930 Development of RW0007 finished. ~85 gal removed
1130 DPT drillers take lunch. BW0003BC+E + BW0001E installed.
1150 Take lunch. Return from "empty" labels for empty contaminated drums
from Headquarters. All IS wells padded. Drillers meeting on
EW0008 + 0007 pads
1350 Return to site. Hollow stem drill rig + drillers have left the site.
DPT drillers waiting for bentonite seal to hydrate in final well.
Begin sounding all wells for total depth. Development continues.
1330 All wells installed. Drillers clean site & excavate pad areas

Plans/Future Activities

4x6 pads to be placed over each bundel well set.
1545 Drillers leave site to load truck w/ concrete & make pads.
development continues.
1615 Drum log updated leave site to Titusville office.
1645 CCV of YSIs. Package WS0001 sample for FedEx shipping
1725 ~~AWOS~~ WS0001 samples sent to CAS. End of field day

1/27/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: ESTCP LC34
Project No.: TR0072
Contractors: EDS (Chris Phelps + Kieth Olson)

Date: 1/05/11
Task No.: 04

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: Pad installation

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0615 Arrive @ Titusville office. Calibrate YSI & pack vehicle.
0730 Arrive @ LC34 site. Drillers onsite. Begin padding BL-0001
0800 Tailgate safety meeting. Development of wells continues.
1045 All 4x6 pads in place. Pads covered w/ pastic to protect the wet concrete from forecast rain.
1100 All wells developed. Final updates made to drum log. Final site clean up. All spill pallets covered & strapped. All garbage removed & disposed of in dumpsters.
1125 Drillers leave site. End of field efforts

Plans/Future Activities

1/05/11
Signature/Date

Geosyntec consultants

BORING LOG

BOREHOLE LOCATION MAP

Location of RW0008

BORING NO.: SD1001 PROJECT NO.: TR0272 PAGE 1 OF 3

E: hCOG DATE: 1/19/2011

TOOLS AND METHOD: SPLIT SPOON BIT DIA:

TOTAL DEPTH: 47 FT GROUNDWATER DEPTH: ~7 FT

DRILLING COMPANY: EDS RIG: HSA w 2.5 inch bit.

DRILLERS: Mike Miller, Corey Cox LOGGERS: R DARADO

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE (FT)	PID (ppm)	DRILLING LOG
HAND AUGERED 0-5 FT BLS		0		NO PID from 5-19 FT BLS
		1		
		2		
		3		
		4		
		5		
TAN MEDIUM SAND W/ SHELL (<20%)		6		
		7		
		8		
		9		
		10		
TAN MED SAND W/ SHELL (>50%)		11		
NO RECOVERY 11-12 FT BLS		12		
GRAY & TAN FINE TO MED		13		
SAND W/ SHELLS (<10%)		14		
		15		
NO RECOVERY 15-16 FT BLS		16		
GRAY FINE SAND W/ SHELL (<10%		17		
		18		
		19		

Geosyntec consultants BORING NO.: SD1001 SITE: ~~TR0272~~ LC34 PROJECT NO.: TR0272 PAGE 2 OF 2

LITHOLOGY LOG	DEPTH (FT) GRAPHIC LOG	GRAPHIC DEPTH LOG SCALE (FT)	PID (ppm)	DRILLING LOG
TAN & GRAY FINE SAND W/ SHELL (<15%)	20		21.5	
	21			
	22		80.3	
	23			
	24		294	Sample @ 24ft 0905
	25			
NO RECOVERY 25-26FT BLS	26			PID Readings
GRAY FINE SAND	27	132.4		
GRAY SILTY FINE SAND	28	70.1		
	29			
GRAY FINE SAND W/ SHELL (<10%)	30	132.2		
	31			
	32	202.4		
	33			
	34			
SILTY FINE SAND	35	228		Sample @ 35.5ft 0930
	36			
GRAY SILTY FINE SAND W/ SHELL < 10%	37	124.7		
NO RECOVERY 37-38 FT BLS	38			
	39	230		
GRAY FINE SAND W/ SHELL (>5%)	40			
	41	377.2		Sample @ 41ft @ 0944
	42			
	43	284		
Clayey silty sand	44	349.9		Sample @ 44.5ft @ 1009

Geosyntec consultants BORING NO.: SD0001 SITE: LC24 PROJECT NO.: TR0272 PAGE 3 OF 3

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE (ft)	PID (ppm)	DRILLING LOG
95% Clayey silty sand	45	45	120,7	
	46			
	47		82,2	
	48			Boring not complete Rig down
	49			
	50			
	51			
	52			
	53			
	54			
	55			

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BORING LOG

Save doc/IBW02

BOREHOLE LOCATION MAP

BORING NO.: SB1002 PROJECT NO.: TR0372 PAGE 1 OF 2

E: LC34 DATE: 1/19/11

TOOLS AND METHOD: DPT BIT DIA: 2 1/4"

TOTAL DEPTH: 60 ft GROUNDWATER DEPTH: ~7 ft

DRILLING COMPANY: EDS RIG: Geoprobe 6620DT

DRILLERS: Chris + Kevin LOGGERS: Neil Stigby

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE (FT)	PID (ppm)	DRILLING LOG
Hand Auger to 5'				
Tan M Sand w/ 5% Shell		5	0.0	
			0.5	
			0.2	
		10		
			0.1	
Brown Gray w/ 15% shell			0.3	
		15	0.1	
			0.8	
Gray F-M Sand w/ 5% shell			4.6	
			1.6	
		20	0.9	
			8.1	
Gray F-M Sand w/ 5% shell			11.1	
			17.5	
			19.3	
Gray F Sand trace shell		25		
			29.4	
			10.2	
			25.1	
		30		
Gray F-M Sand w/ 5% Shell			6.6	
			49.7	
			32.8	
			24.5	
		35		
			6.7	
Dark Gray Shell hash w/ 20% silt			28.5	
			4.5	
		40	10.2	

Geosyntec consultants BORING NO.: SBP02 SITE: LC 34 PROJECT NO.: TR0272 PAGE 2 OF 2

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE (ft)	PID (ppm)	DRILLING LOG
gray shell hash w/ silt		40		
silty sand clay, no shell			2.0	
			1.1	
			0.2	
		45		
			1.7	
			2.1	
			0.8	
Gray clayey silty F sand			0.1	
			0.1	
		50	0.0	
Gray F-M sand			0.1	
~~Gray~~ Gray silty Fine sand			0.1	
			0.1	
			0.1	
		55		
			0.3	
			0.4	
gray silty fine sand			0.1	
			0.3	
			0.3	
		60		

Geosyntec consultants

BORING LOG

Similar to BW001

BOREHOLE LOCATION MAP

BORING NO.: SB002 PROJECT NO.: TR0272 PAGE 1 OF 2

E: LC34 DATE: 1/19/11

TOOLS AND METHOD: DPT BIT DIA: 2¼"

TOTAL DEPTH: 60 ft GROUNDWATER DEPTH: ~ 7ft

DRILLING COMPANY: EDS RIG: Geoprobe 3260DT

DRILLERS: Chris + Keith LOGGERS: No. 1 Sophy

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE (ft)	PID (ppm)	DRILLING LOG
Hand Auger to 5' to avoid utilities				
		5	0.3	
Tan M SAND w/ 15% SHELL			0.2	
			0.1	
			0.4	
		10		
			0.0	
Grey M-F SAND w/ 10% shell			0.4	
			0.3	
		15		
			1.4	
M-F Grey SAND w/ 10% shell			4.3	
			3.5	
			4.6	
		30		
			17.1	
			30.0	
			19.4	
			11.5	
		25		
			5.8	
As Above w/ trace silt			2.9	
			1.4	
			4.7	
		20		
			4.4	
SILTY FINE GRAY SAND			8.0	
			10.0	
		35	5.7	
			72.3	
gray fine F silty sand			82.8	
			31.8	
		40		

Geosyntec consultants BORING NO.: SB103 SITE: LC 34 PROJECT NO.: TR0272 PAGE 2 OF 2

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE (ft)	PID (ppm)	DRILLING LOG
gray silty sand		40	50.8 93.6 164.0 356.2 35.4	- sampled 1320 44 ft
		45	37.5 14.2	- sampled @ 1320 43 ft
gray clayey silt & sand grey F-M sand		50	6.0 6.3 3.1 0.5	- sampled 46 ft @ 1354
gray silty fine sand w/ shells			0.4 0.2 0.1	- sampled 49.5 ft @ 1352
		55		
gray F-M silty sand			0.4 0.2 0.5	
gray coarse sand w/ shell hash		60	0.5	

P:\ADMINISTRATIVE\FIELD\FIELD FORMS\BORINGLOG PG2.DWG (7 June 2007) eguyer

Geosyntec consultants

BORING LOG

same as BW003

BORING NO.: SB10004 / PROJECT NO.: TR0278 PAGE 1 OF 2

E: LC34 DATE: 1/19/11

TOOLS AND METHOD: DPT BIT DIA: 2 1/4"

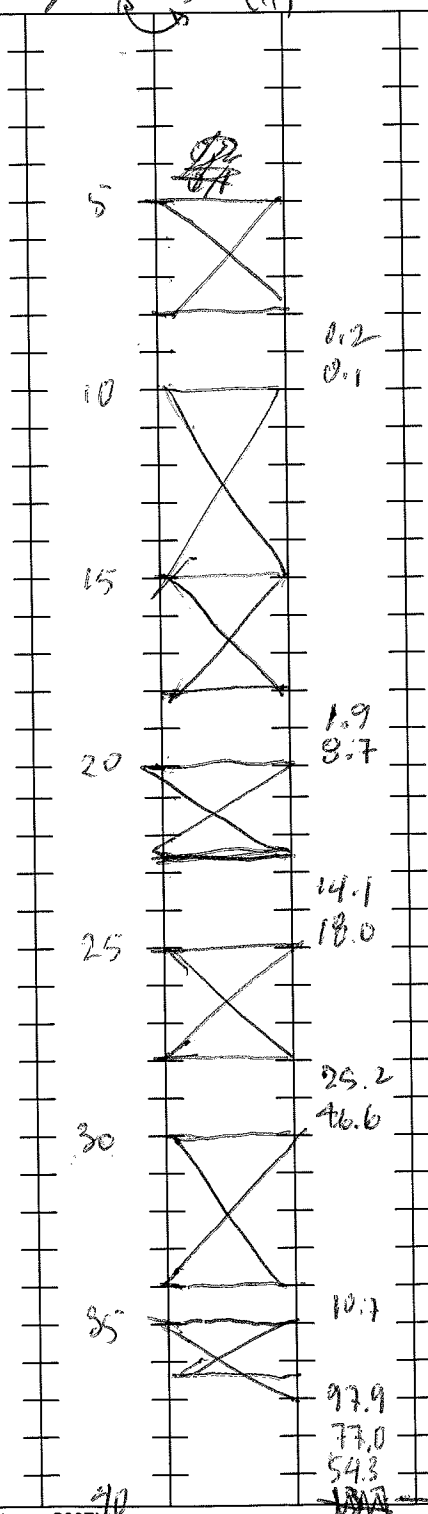
TOTAL DEPTH: 60 ft GROUNDWATER DEPTH: 17 ft.

DRILLING COMPANY: CAS RIG: DPT

DRILLERS: C. PHELPS, K. OLSON LOGGERS: N. STAPLEY

BOREHOLE LOCATION MAP

LITHOLOGY LOG | GRAPHIC LOG | DEPTH SCALE (ft) | PID (ppm) | DRILLING LOG



·1

Tan Medium Sand

Tan-gray med. sand

gray medium sand w/ shell

gray F-M Sand

gray F-M silty sand w/ shell

sampled 34.5 ft @ 1514

sampled 37 ft @ 1530

Geosyntec consultants BORING NO.: SB1004 SITE: LC34 PROJECT NO.: TR0272 PAGE 2 OF 2

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE (ft)	PID (ppm)	DRILLING LOG
gray F-M sand w/ shell		40	33.0	• sampled ~~93 ft~~ @ 93 ft
			38.9	
			64.6	
gray silty clay			31.7	1543
		45	19.8	
			10.5	• sampled 46.5 ft @ 1555
gray silty clay			1.5	
gray coarse silty sand w/ shell			1.5	• sampled 45 ft @ 1553
		50	1.0	
Grey F Sand & Silt w/ shell frags			0.2	sampled 50 ft @ 1556
			0.1	
			0.3	
			0.2	
			0.2	
		55		
			0.2	
Grey Silty shelly FSAND. V. wet.			0.1	
			0.2	
			0.4	
		60		

P:\ADMINISTRATIVE\FIELD\FIELD FORMS\BORINGLOG PG2.DWG (7 June 2007) eguyer

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: JVB

Water Quality Meter - Model/Serial #: YSI 556 MPS 08A100738 Turbidimeter - Model/Serial # ~~08A100738~~ LaMotte ME12153

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		1/24/11	0625	22.2	8.744	8.39/8.32	100.2/100.0	(P) F
CAL ICV (CCV)		1/24/11	~~0~~1700	23.6	8.482	8.31		(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		1/24/11	0640	1.413	7807	3/11	1.297/1.413	(P) F
CAL ICV (CCV)		1/24/11	1710	1.413	7807	3/11	1.450	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		1/24/11	0635	4.0	3002536	3/12	4.04/4.00	(P) F
CAL (ICV) CCV		↓	↓	7.0	2002012	1/12	7.03/7.00	(P) F
CAL ICV CCV				10.0	7796	3/11	10.06/10.00	(P) F
CAL ICV (CCV)		1/24/11	1700	4.0	3002536	3/12	4.06	(P) F
CAL ICV CCV		↓	↓	7.0	2002012	1/12	7.17	(P) F
CAL ICV CCV		↓	↓	10.0	7796	3/11	10.02	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		1/24/11	0645	240 @ 25	2244	3/13	238.0/240.0	(P) F
CAL ICV (CCV)		1/24/11	1705	240 @ 25	2244	3/15	238.0	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	1/24/11	9.85/9.92	(P) F
CAL ICV (CCV)	↓	10.48	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0372 Field Personnel: MRS

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D7373AK Turbidimeter - Model/Serial # LaMotte 2020 / 2022-1602

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		1/24/11	0625	22.0	8.744	8.20/8.75	93.9/100.0	P F
CAL ICV CCV		1/24/11	1650	22.5	8.627	8.77	101.6	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		1/24/11	0640	1.413	7807	3-11	1.095/1.413	P F
CAL ICV CCV		1/24/11	1650	1.413	7807	3/11	1.412	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		1/24/11	0635	4.0	2003526	3-12	3.94/4.00	P F
CAL ICV CCV			↓	7.0	2002012	1-12	7.23/7.00	P F
CAL ICV CCV				10.0	7796	3-12	9.84/9.99	P F
CAL ICV CCV			1655	4.0	2003526	3/12	4.1	P F
CAL ICV CCV				7.0	2002012	1/12	6.92	P F
CAL ICV CCV		↓	↓	10.0	7796	3/11	9.80	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		1/24/11	0645	240@25	2247	3-12	257.8/240.1	P F
CAL ICV CCV		1/24/11	1705	240@25	2247	3/12	234.1	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	1/24/11	9.33/10.07	P F
CAL ICV CCV	↓	10.37	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LCS4 Project #: TR0272 Field Personnel: JWB

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D2373 4K Turbidimeter - Model/Serial # LaMotte 2020e / ME11153

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		1/25/11	630	22.64	8.644	9.50/8.50	98.0/97.9	P F
CAL ICV CCV		1/25/11	1340	24.02	8.418	8.13	96.4	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		1/25/11	635	1.413	7807	3/11	1.47/1.413	P F
CAL ICV CCV		1/25/11	1355	1.413	7807	3/11	1.377	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		1/25/11	635	4.0	300 2596	3/12	4.09/4.00	P F
CAL ICV CCV		1/25/11	~~635~~	7.0	200292	1/12	6.93/7.00	P F
CAL ICV CCV			↓	10.0	7796	3/11	9.81/9.97	P F
CAL ICV CCV			1350	4.0	same as above	same as above	4.14	P F
CAL ICV CCV			↓	7.0			7.09	P F
CAL ICV CCV				10.0			9.89	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		1/25/11	650	240 @ 25°	2244	3/15	235.2/240.0	P F
CAL ICV CCV		1/25/11	1400	240 @ 25°	2244	3/15	236.7	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	1/25/11	9.93/10.00	P F
CAL ICV CCV	1/25/11	10.76	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC 34 | Project #: TK0272 | Field Personnel: JVB

Water Quality Meter - Model/Serial #: YSI 556 MPS / 08A100738 | Turbidimeter - Model/Serial # LaMotte 2020 / 2622-1602

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		1/25/11	630	23.18	8.546	9.77/8.72	102.4/101.4	P F
CAL ICV CCV		1/25/11	1322	25.57	8.263	8.36	100.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		1/25/11	635	1.413	7807	3/11	1.452/1.413	P F
CAL ICV CCV		1/25/11	1340	1.413	7807	3/11	1.451	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		1/25/11	635	4.0	30025326	3/12	4.03/4.00	P F
CAL ICV CCV		↓	↓	7.0	26020:2	1/12	7.14/7.00	P F
CAL ICV CCV		↓	↓	10.0	7796	3/11	9.71/10.00	P F
CAL ICV CCV		1/25/11	1330	same as	same as	same as	4.26	P F
CAL ICV CCV		↓	↓	above	above	above	7.20	P F
CAL ICV CCV		↓	↓	↓	↓		9.88	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		1/25/11	650	240 @ 25°	2244	3/15	236.5/240.0	P F
CAL ICV CCV		1/25/11	1345	240 @ 25°	2244	3/15	232.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No | Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	1/25/11	10.19/10.11	P F
CAL ICV CCV	1/25/11	9.6	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

1,5 of 5

WELL DEVELOPMENT DATA FORM

Site Name: UC39	Project Number: TR0772
Well Name: BMW001A	Date Installed: 1/20/11
	Date Developed: 1/24/11
Depth To Bottom: (measured from ~~top of~~ TOC) (Initial) 26' 25.74' JKB	Pump (Type) peristaltic
(Final) 26'	(~~Capacity~~) pumping rate ~0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: JKB
Measuring Point: TOC	Drilling Firm Representative: EDS
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
~~927~~	~~0.5~~	developed 1/24/11 by EDS ~3 gal						
934	1.0	7.50	23.24	1157	144	0.60	-134.3	clear-gray
940	2.0	7.44	23.34	1137	2710	0.58	-164.5	gray
946	2.5	7.41	23.39	1166	147	0.60	-167.5	clear-gray
952	3.5	7.40	23.49	1171	33.9	0.60	-167.5	clear
1000	4.0	7.39	23.56	1179	80.4	0.60	-167.1	clear

WELL DEVELOPMENT DATA FORM

Site Name: L439
Well Name: BW0001 D

Depth To Bottom: (measured from TOC) (Initial) 33 (TOC) 32.69' (Final) 33

Field Cleaning of Equip: N/A
Save Purge Water: YES
Measuring Point: TOC
Casing I.D.: 3/4"

Project Number: TR0272
Date Installed: 1/20/11
Date Developed: 1/24/11

Pump (Type) Peristaltic
(~~Capacity~~) pumping rate 0.15 gpm

Purge Water Containment Method: stored in drums
GeoSyntec Representative: JKB
Drilling Firm Representative: SNS

developed 1/24/11 by SNS and JKB

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1010	0	7.40	23.24	2079	3090	1.10	-123.6	gray
1015	1	7.42	23.43	2169	1164	1.15	-165.2	gray
1020	1.5	7.42	23.43	2130	433	1.13	-168.0	gray
1025	2.0	7.41	23.50	2181	326	1.15	-169.4	gray
1030	3.0	7.41	23.61	2191	220	1.15	-168.5	clear-gray
1035	4.0	7.39	23.53	2210	29.9	1.17	-166.0	clear
1040	4.5	7.39	23.55	2198	14.7	1.16	-162.6	clear

WELL DEVELOPMENT DATA FORM

Site Name: C634	Project Number: TR0272
Well Name: BW0001C	Date Installed: 1/20/11
	Date Developed: 1/24/11
Depth To Bottom: (Measured from TOC) (Initial) 40' JKB 39.76'	Pump (Type) peristaltic
(Final) 40	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: JKB
Measuring Point: TOC	Drilling Firm Representative: GES
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
830	0	7.54	22.81	1122	1077	0.58	-197.0	gray
838	1.5	7.45	23.15	1530	186	0.80	-178.1	clear-gray
844	2.5	7.44	23.22	1920	103.3	1.01	-174.3	"
851	4	7.39	23.17	2289	29.2	1.22	-162.6	clear
900	4.5	7.38	23.22	2400	17.3	1.28	-161.2	clear

WELL DEVELOPMENT DATA FORM

Site Name: LC34
Well Name: BW0001D

Depth To Bottom: JVS 46.57'
(measured from TOC) (Initial) 47 ~~46.48~~
(Final) ~~47~~

Field Cleaning of Equip: N/A
Save Purge Water: YES
Measuring Point: TOC
Casing I.D.: 4"

Project Number: JR0272
Date Installed: 1/20/11
Date Developed: 1/25/11

Pump (Type) PERISTALTIC
(~~Capacity~~) pumping rate 0.15 gpm

Purge Water Containment Method: stored in drums
GeoSyntec Representative: JVS
Drilling Firm Representative: EDS

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
developed by EDS on 1/21/11 w 3 gal								
0925	0	7.67	24.01	2978	148	1.58	-141.1	dark gray
0932	1.0	7.56	24.07	3156	91.7	1.68	-141.5	clear
0937	2.0	7.54	24.16	3163	72.4	1.68	-136.3	clear
0943	3.0	7.53	24.17	3180	35.3	1.69	-133.5	clear

WELL DEVELOPMENT DATA FORM

Site Name: LL84	Project Number: TR0272
Well Name: BW0001 R	Date Installed: 1/24/11
	Date Developed: 1/25/11
Depth To Bottom:	
(measured from TOC) (Initial) 54 JLB 53.32'	Pump (Type) PERISTALTIC
(Final) 54	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	
Save Purge Water: YES	Purge Water Containment Method: stored in drums
Measuring Point: TOC	GeoSyntec Representative: JLB
Casing I.D.: 3/4"	Drilling Firm Representative: EOS

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
0925	0	7.97	22.67	2123	Err4	1.17	-82.5	gray
0930	0.75	7.83	23.49	2504	Err4	1.33	-289.0	gray
0937	2.0	7.80	23.76	2522	1155	1.33	-230.6	cloudy-gray
0945	3.25	7.76	23.83	2550	27.8	1.35	-209.3	clear-gray
0950	4.25	7.75	23.94	2555	156	1.35	-205.5	clear-gray
0955	5.0	7.74	23.98	2558	41.5	1.35	-199.3	clear
	*Err4 indicates error in reading							

WELL DEVELOPMENT DATA FORM

Site Name: LC39	Project Number: 1R0272
Well Name: B1N0001F	Date Installed: 1/20/11
	Date Developed: 1/24/11
Depth To Bottom: (measured from TOC) (Initial) by 60.39'	Pump (Type) Peristaltic
(Final) 61	(~~Capacity~~) ~~0.5~~ 0.15 gpm pumping rate
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: SRB
Measuring Point: TOC	Drilling Firm Representative: EDS
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
830	0	7.67	21.45	1971	1038	1.07	-143.0	gray
835	1	7.80	23.44	~~10~~ 2739	369	1.46	-152.6	clear-gray
841	2	7.80	23.03	2765	264	1.47	-157.8	"
850	3.5	7.84	23.68	2763	366	1.47	-169.7	~~clear~~
900	4.5	7.79	23.74	2767	64.9	1.47	-148.2	clear

WELL DEVELOPMENT DATA FORM

Site Name: LC34	Project Number: 9R0272
Well Name: BW0002A	Date Installed: 1/20/11
	Date Developed: 1/24/11
Depth To Bottom: (measured from TOC) (Initial) 26 BGS 25.72'	Pump (Type) PARASTALTIC
(Final) 26	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: NA	Purge Water Containment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: JKB
Measuring Point: TOC	Drilling Firm Representative: EDS
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1330	1.0	7.72	24.79	1208	919	0.60	-181.0	cloudy-gray
1340	1.5	7.60	24.63	1265	2363	0.63	-187.4	gray
1345	2.0	7.58	24.63	1280	2002	0.64	-187.1	gray
1350	2.75	7.59	24.99	1278	131	0.64	-181.9	clear-gray
~~1400~~	~~4.0~~				~~25.4~~			
1402	4.0	7.55	24.88	1300	79.2	0.65	-161.8	clear-gray
1407	4.5	7.53	24.86	1301	19.8	0.65	-161.7	clear

WELL DEVELOPMENT DATA FORM

Site Name: CC34	Project Number: TR0272
Well Name: BW0002 B	Date Installed: 1/21/11
	Date Developed: 1/24/11
Depth To Bottom: (measured from TOC) (Initial) 38 feet 32.68'	Pump (Type) PARASTALTIC
(Final) 33	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: Yes	GeoSyntec Representative: JRB
Measuring Point: ~~TOC~~	Drilling Firm Representative: EDS
Casing I.D.: 2 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1335	1.0	7.87	24.12	1224	79.3	0.62	-210.5	clear-gray
1340	1.5	7.71	24.12	1551	375	0.79	-207.3	~~clear~~ gray
1345	2.0	7.65	24.20	1720	272	0.88	-201.2	cloudy-gray
1350	2.75	7.61	24.31	1830	259	0.94	-198.6	clear
1356	3.0	7.60	24.39	1878	14.7	0.97	-198.9	clear

WELL DEVELOPMENT DATA FORM

Site Name: LC 39
Well Name: BIN0002 C

Depth To Bottom:
(measured from TOC) (Initial) 40 JVS 39.78'
(Final) 40

Project Number: TR0272
Date Installed: ~~1/24/11~~ 1/21/11
Date Developed: 1/24/11

Pump (Type) PARASTALTIC
(~~Capacity~~) pumping rate 0.15 gpm

Field Cleaning of Equip: N/A
Save Purge Water: YES
Measuring Point: TOC
Casing I.D.: 3/4"

Purge Water Containment Method: stored in drums
GeoSyntec Representative: JVS
Drilling Firm Representative: EDS

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1103	1.0	7.89	23.86	2783	1138	1.48	-169.6	gray
1108	1.5	7.84	23.83	2783	410	1.48	-160.9	gray
1113	2.0	7.81	23.83	2782	379	1.48	-156.2	gray
1120	3.0	7.79	23.77	2776	372	1.47	-156.1	cloudy-gray
1130	5.0	7.77	23.57	2764	274	1.47	-151.1	clear-gray
1135	5.5	7.76	23.66	2768	371	1.47	-151.0	cloudy-gray
1140	6.0	7.76	23.66	2769	320	1.47	-147.9	cloudy-gray
1145	6.5	7.76	23.76	2776	296	1.48	-145.1	cloudy-gray

WELL DEVELOPMENT DATA FORM

Site Name: LCSY	Project Number: TR0272
Well Name: BW0002 D	Date Installed: 1/21/11
	Date Developed: 1/25/11
Depth To Bottom: (measured from TOC) (Initial) 47' JVB 46.44'	Pump (Type) PERISTALTIC
(Final) ~~47~~	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	
Save Purge Water: YES	Purge Water Containment Method: stored in drum
Measuring Point: TOC	GeoSyntec Representative: JVB
Casing I.D.: 3/4"	Drilling Firm Representative: EDS

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1049	0	8.17	24.69	2537	Err4	1.31	-220.0	gray
1055	1.0	8.01	24.73	2471	2453	1.28	-201.8	gray
1102	2.0	7.94	24.89	~~2948~~ 2744	2948	1.42	-202.5	gray
1111	3.0	7.89	24.60	2750	201	1.43	-191.7	clear-gray
1116	3.5	7.86	24.54	2773	67.1	1.45	-185.4	clear-gray
1121	4.0	7.85	24.47	2768	42.1	1.45	-182.3	clear
	* Err4 indicates error in reading							

WELL DEVELOPMENT DATA FORM

Site Name: LL39
Well Name: BW0002 E

Depth To Bottom:
(measured from TOC) (Initial) 54 (JVB 53.36')
(Final) 54

Field Cleaning of Equip: N/A
Save Purge Water: Yes
Measuring Point: TOC
Casing I.D.: 3/4"

Project Number: TRO272
Date Installed: ~~1/25/11~~ 1/24/11
Date Developed: 1/25/11

Pump (Type) PERISTALTIC
(~~Capacity~~) pumping rate 0.15 gpm

Purge Water Containment Method: Stored in drums
GeoSyntec Representative: JVB.
Drilling Firm Representative: EDS

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1019	0	8.02	24.50	2690	Err 4	1.41	-204.1	grey
1025	2.0	7.91	24.50	2709	367	1.41	-183.7	cloudy-grey
1031	3.25	7.89	24.49	2712	109.6	1.42	-172.7	clear-grey
1037	4.5	7.88	24.48	2711	75.6	1.42	-167.3	clear-grey
	*Err 4	indicates	error	in reading				

WELL DEVELOPMENT DATA FORM

Site Name: UC39	Project Number: TR0272
Well Name: RW0002 F	Date Installed: 1/21/11
	Date Developed: 1/24/11
Depth To Bottom: (measured from TOC) (Initial) 60.37' JWB	Pump (Type) PARASIALTIC
(Final) 61	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Contaiment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: JWB
Measuring Point: TOC	Drilling Firm Representative: EDS
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1100	0	7.42	23.50	1280	5254	0.66	-217.7	gray
1106	1.0	7.82	23.54	1447	192	0.75	-216.6	clear - gray
1111	2.0	7.77	23.57	1671	104	0.87	-204.0	clear - gray
1120	~~2.5~~ 3.0	7.76	23.57	1978	526	1.04	-205.7	cloudy - gray
1125	3.5	7.75	23.54	2105	406	1.11	-200.4	cloudy - gray
1130	4.5	7.72	23.26	2206	25.1	1.17	-197.3	clear

WELL DEVELOPMENT DATA FORM

Site Name: LCSA	Project Number: TR0272
Well Name: BWD003-A	Date Installed: 1/21/11
	Date Developed: 1/24/11
Depth To Bottom: (measured from TOC) (Initial) 26 JVB 25.77' (Final) 26	Pump (Type) PARASTALTIC
	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drum
Save Purge Water: Yes	GeoSyntec Representative: JVB
Measuring Point: TOC	Drilling Firm Representative: EAB
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1422	0	7.83	23.17	1019	5000	0.53	-243.6	gray
1433	2.0	7.52	23.50	1359	4564	0.70	-223.2	cloudy-gray
1439	3.0	7.48	23.46	1400	410	0.71	-206.5	cloudy-gray
1444	4.0	7.46	23.45	1385	197	0.72	-198.9	clear-gray
1450	5.0	7.46	23.54	1394	75.5	0.72	-185.0	clear

WELL DEVELOPMENT DATA FORM

Site Name: LC34	Project Number: TR0272
Well Name: BW0003-B	Date Installed: 1/24/11 (grouted after developed)
	Date Developed: 1/24/11
Depth To Bottom: (measured from TOC) (Initial) 33 ~~feet~~ 32.58'	Pump (Type) PERISTALTIC
(Final) 33	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: MB
Measuring Point: TOC	Drilling Firm Representative: EDJ
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1424	0	8.14	23.73	806	4671	0.41	-127.4	gray
1435	2.25	7.93	23.76	1325	3776	0.68	-207.1	gray
1441	3.25	7.84	23.74	1610	1832	0.83	-197.5	gray
1445	4.0	7.79	23.76	1737	436	0.90	-191.0	gray
1450	4.5	7.75	23.82	1835	205	0.95	-183.8	cloudy - gray
1455	5.0	7.74	23.81	1857	96.5	0.96	-178.2	clear - gray

WELL DEVELOPMENT DATA FORM

Site Name: SC 34
Well Name: PW0803 C

Depth To Bottom:
(measured from TOC) (Initial) 40 IVB 38.69'
(Final) 40

Field Cleaning of Equip: N/A
Save Purge Water: YES
Measuring Point: TOC
Casing I.D.: 3/4"

Project Number: TR0272
Date Installed: 1/24/11
Date Developed: 1/25/11 (>24 hrs)

Pump (Type) PARASTALTIC
(~~Capacity~~) pumping rate 0.15 gpm

Purge Water Containment Method: stored in drums
GeoSyntec Representative: JVB
Drilling Firm Representative: EDS

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
0805	0	8.13	23.80	1787	101.4	0.93	-139.3	clear-gray
0819	1.75	8.13	23.70	1975	1752	1.03	-149.3	gray
0824	2.5	7.98	23.87	2307	1690	1.21	-159.0	cloudy-gray
0830	3.5	7.93	23.88	2441	34.3	1.29	-153.3	clear gray
0835	4.5	7.90	~~23.15~~ 23.88	2515	19.6	1.33	-153.2	clear

WELL DEVELOPMENT DATA FORM

Site Name: LC 34	Project Number: TR0272
Well Name: BW8003-D	Date Installed: 1/21/11
	Date Developed: 1/29/11
Depth To Bottom: (measured from TOC) (Initial) 47 (as) 46.98'	Pump (Type) PARASTALTIC
(Final) 47	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: JKB
Measuring Point: TOC	Drilling Firm Representative: EDS
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
1515	0.5	7.74	23.70	2526	1397	1.35	-176.9	gray
1520	1.75	7.82	23.82	2006	945	1.07	-197.6	gray
1530	3.0	7.72	23.72	2496	2132	1.32	-179.1	gray
1535	4.0	7.66	23.64	2691	360	1.40	-192.9	cloudy-gray
1550	6.0	7.66	23.79	2682	399	1.42	-178.0	gray

WELL DEVELOPMENT DATA FORM

Site Name: U34	Project Number: TR0272
Well Name: BW0003-S	Date Installed: 4/24/11
	Date Developed: 4/25/11 (>24 hrs)
Depth To Bottom: (measured from TOC) (Initial) 54 JMB 53.32'	Pump (Type) PARASTALTIC
(Final) 54	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: Yes	GeoSyntec Representative: JMB
Measuring Point: TOC	Drilling Firm Representative: CDS
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
0842	0	8.08	23.87	2613	Err 4	1.38	-214.4	grey
0847	1.5	7.94	23.98	~~1145~~ 2679	1145	1.41	-184.0	cloudy - grey
0855	3.0	7.92	23.97	2663	182	1.41	-179.2	cloudy - grey
0859	4.0	7.90	24.00	2673	177	1.41	-174.7	clear - grey
0905	5.0	7.89	24.01	2676	45.6	1.41	-170.4	clear
	* Err 4	indicates	error	in reading				

WELL DEVELOPMENT DATA FORM

Site Name: LC34	Project Number: TR0272
Well Name: MW0003F	Date Installed: 1/21/11
	Date Developed: 1/25/11
Depth To Bottom: (measured from TOC) (Initial) 60.20 BGS	Pump (Type) PERISTALTIC
(Final) ~~61~~	(~~Capacity~~) pumping rate 0.15 gpm
Field Cleaning of Equip: N/A	Purge Water Containment Method: stored in drums
Save Purge Water: YES	GeoSyntec Representative: JKB
Measuring Point: TOC	Drilling Firm Representative: EDS
Casing I.D.: 3/4"	

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
0805	0	7.26	22.77	2616	93.3	1.41	-108.6	clear gray
0817	1.5	7.45	23.19	2642	3306	1.42	-142.7	gray
0823	2.5	7.52	23.20	2636	1465	1.41	-140.8	cloudy gray
0828	3.25	7.55	23.24	2643	112	1.42	-136.4	clear - gray
0832	4.0	7.50	~~2643~~ 23.23	2643	36.1	1.42	-135.8	clear

WELL DEVELOPMENT DATA FORM

Site Name: LC34	Project Number: TR0077
Well Name: RW 0007	Date Installed: 1/21/11
	Date Developed: 1/24/11
Depth To Bottom:	
(Initial) 42	Pump (Type) centrifugal
(Final) 42	(~~Capacity~~) 7 gal/min pumping rate
Field Cleaning of Equip: N/A	
Save Purge Water: Yes	Purge Water Containment Method: 55 gal drum
Measuring Point: ground surface	GeoSyntec Representative: Neil Stapley
Casing I.D.: 6"	Drilling Firm Representative: Mike

Time	Volume Removed (gal)	pH	Temp (°C)	Conductance (µS/cm)	Turbidity (NTU)	Salinity (ppm)	ORP (mV)	Comments
0810					–			
0825	40				–			
Turn pump off. Let well recharge								
0855	40				–			Fine Sand coming through hose
0100	75				216			
Turn pump on & Let well recharge								
0915	75				39.8			Clear almost
0927	85				31.5			shut off pump

Total Depth of Completed Wells

Project/Project Number: _____

Date:

Time	DPT Location	Screened Interval (ft BLS)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (g/L)	ORP (mV)	Color / Notes
BW0001	A	25.46	+0.28	25.74							
	B	~~32~~ 41		32.69							
	C	39.48		39.76							
	D	76.09		~~46.48~~	46.57						
	E	53.04		53.32							
	F	60.11		60.39							
BW0002	A	~~25~~.44		25.72							
	B	32.40		32.68							
	C	39.50		39.78							
	D	46.16		46.44							
	E	53.08		53.36							
	F	60.09		60.37							
BW0003	A	25.49		25.77							
	B	32.30		32.58							
	C	38.41		38.69							
	D	46.20		46.48							
	E	53.04		53.32							
	F	59.92		60.20							
		Add 0.28' to compensate for water level meter probe length									

Notes:
DPT = Direct Push Technology
ft BLS = feet below land surface
mS/cm = milliSiemens per centimeter (or millimhos per centimeter)
NTU = Nephelometric Turbidity Units

DO (mg/L) = Dissolved Oxygen (milligrams per liter)
Temp (°C) = Temperature (degrees Celsius)
TDS (g/L) = Total Dissolved Solids (grams per liter)
ORP (mV) = Oxidation Reduction Potential (milliVolts)

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: ~~TR0271.CC39~~
Project No.: TR0272
Contractors:

Date: 2/1/11
Task No.:

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: BW0001AF, BW0002AF
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0700 - office, calibrate YSI & turbidimeter.
0800 - on site, safety meeting.
0830 - begin sampling
- completed BW0002D-F, BW0001A-C
1130 - lunch
- dropped off JOE's NASA badging paperwork.
- bought 9V batteries

1230 - on-site

1600 - left site to ship samples
- completed BW0001D-F, BW0002A-C
BW0003E, F, A, B

1700 - recal YSI and turbidimeter
1730 - end of day

Plans/Future Activities

2/1/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: LC39
Project No.: YR0272
Contractors:

Date: 2/2
Task No.:

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: BW, IW, IJ
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0700 - office, calibrate, ICV

0800 - 1000 - GSA pump change out

1000 - on site

- completed sampling: IW00610, IW00710, IW00710D1
- GPS for IJ and BW

1200 - Lunch

1230 - on site

Complete sampling: BW00038 & D, RW00078, IW0076, IW0020, IW00610, IW00700, IW00700D1, IW00209, IW00710, IW00710D1

1615 - left site to ship samples

Plans/Future Activities

1930 - office - COC. end of day.

2/2/14
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: ~~TR0272~~ C039
Project No.: TR0272
Contractors:

Date: 2/3/11
Task No.:

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0650 - at office, calibrate, load truck.
0800 - onsite

completed sampling on: IW0019, IW0015, IW0016, IW0021

IW0023 well found destroyed
- soil @ 5.5 ft. bls

1200 - lunch
1230 - onsite

complete sampling on: IW0020, IW0670 1.

1520 - offsite to ship samples.

1600 - at office, CCV - end of day

Plans/Future Activities

2/3/11
Signature/Date

nnshare\rem-form\DAILY

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC 34 Project #: TR0272 Field Personnel: JVB

Water Quality Meter - Model/Serial #: Turbidimeter - Model/Serial # La Motte 2020e – MS12153

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		2/1	0700	21.6	8.812	9.28/8.81	105.1/99.8	(P) F
CAL ICV (CCV)		2/1	1720	24.10	8.403		8.805	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
							Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV		2/1	0715	1.413	7807	3/11	1.482/1.413	(P) F
CAL ICV (CCV)		2/1	1714	"	"	"	1.465	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
							Acceptance Criteria: +/-0.2 SU	
(CAL) (ICV) CCV		2/1	0710	4.0	~~3003526~~ 7003526	3/12	7.26/7.00	(P) F
CAL ICV CCV		↓	↓	7.0	~~7002012~~ 7002012	1/12	3.99/4.00	(P) F
CAL ICV CCV		↓	↓	10.0	7796	3/11	9.75/9.96	(P) F
CAL ICV (CCV)		2/1	1708	same as	same as	same as	9.13	(P) F
CAL ICV CCV		↓	↓	above	above	above	7.13	(P) F
CAL ICV (CCV)		↓	↓	(9.0			9.85	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/1	0720	240 @ 25°	2244	3/15	243.4/240	(P) F
CAL ICV (CCV)		2/1	1717	"	"	"	234.7	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	2/1	9.87/10	P F
CAL ICV (CCV)	2/1	9.1	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: ESTCP PED Project #: JR0272 Field Personnel: R DAPRATO

Water Quality Meter - Model/Serial #: YSI 556 MPS Turbidimeter - Model/Serial #: LaMotte 2020 2622-1602

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV (CCV)		2/1	1720	22.6	8.472	8.38	101.2	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard ~~(mS/cm)~~ (µS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) ICV CCV		2/1	0652	1,413	7207	03-2011	1,433 → 1,413	(P) F
CAL ICV (CCV)		2/1	1712	same as above			1,494	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) ICV CCV		2/1	0607	7.0	20020112	JAN 2012	7.11 → 7.00	(P) F
(CAL) ICV CCV		↑	0644	10.0	7796	03-17-2011	9.33 → 10.0	(P) F
(CAL) ICV CCV		↓	0649	4.0	20020326	3-2012	3.62 → 3.94	(P) F
CAL ICV (CCV)			1708	7.0	20020112	JAN 2012	7.14	(P) F
CAL ICV (CCV)		2/1	1710	4.0	20020326	3-2012	4.12	(P) F
CAL ICV CCV								P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) ICV CCV		2/1/11	0654	240mV @ 20°C	2244	03/2015	240.5 → 240	(P) F
(CAL) ICV CCV		2/1/11	1715	same as above		→	222.7	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 1.0 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) ICV CCV	2/1	0.95 → 0.9	(P) F
CAL ICV CCV		0.97	P F
CAL ICV (CCV)	2/1	0.90	P F
CAL ICV CCV			P F

~~11 - 40 NTU~~ Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) ICV CCV	2/1	10.27 → 10	(P) F
CAL ICV CCV		9.98	P F
CAL ICV (CCV)	2/1	11	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

1. See Table FS 2200-2 on the back of this form

Comments:

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: L134 Project #: TR0272 Field Personnel: D. BARNETT

Water Quality Meter - Model/Serial #: YSI 556 MPS / 08A100788 Turbidimeter - Model/Serial # LaMotte 2020e / ME2153

Dissolved Oxygen — DEP SOP FT 1500

Acceptance Criteria: +/-0.3mg/L

	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
CAL ICV CCV	2/2	0700	22.6	8.644	8.64/8.64	102.8/100.0	P F
CAL ICV CCV	2/2	1718	24.6	8.325	8.105		P F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance — DEP SOP FT 1200

Acceptance Criteria: +/- 5%

	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
CAL ICV CCV	2/2	0710	1.413	7807	3/11	1.298/1.413	P F
CAL ICV CCV	2/2	1733	"	"	"	1.563	P F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F

pH — DEP SOP FT 1100

Acceptance Criteria: +/-0.2 SU

	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
CAL ICV CCV	2/2	0705	4.0	2003526	3/12	4.03/4.00	P F
CAL ICV CCV	↓	↓	7.0	2002012	1/12	7.08/7.00	P F
CAL ICV CCV	↓	↓	10.0	7796	3/11	9.96/10.0	P F
CAL ICV CCV	↓	1752	Same	Same	Same	3.96	P F
CAL ICV CCV	↓	↓	↓	↓	↓	7.08	P F
CAL ICV CCV	↓	↓	↓	↓	↓	10.07	P F

ORP — SOP N/A

Geosyntec Acceptance Criteria: +/- 5%

	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
CAL ICV CCV	2/2	0715	240 @ 25°	2244	3/15	233.1/240.0	P F
CAL ICV CCV	2/2	1734	"	"	"	237.2	P F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU — Std 10 NTU

Acceptance Criteria: +/- 10%

	Date	Reading (NTU)	Pass or Fail
CAL (ICV) CCV	2/2	8.80/9.8	P F
CAL ICV (CCV)	2/2	11	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU — Std ____NTU

Acceptance Criteria: +/- 8%

	Date	Reading (NTU)	Pass or Fail
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU — Std ____NTU

Acceptance Criteria: +/- 6.5%

	Date	Reading (NTU)	Pass or Fail
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU — Std ____NTU

Acceptance Criteria: +/- 5%

	Date	Reading (NTU)	Pass or Fail
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosynt[illegible] Consultants

Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: Jan Barfus

Water Quality Meter - Model/Serial #: YSI 556 / 05P2373AK Turbidimeter - Model/Serial # LaMotte 2020 / 26856

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		2/2/11	0700	22.00	8.744	8.97→8.74	102.6→100.0	(P) F
CAL ICV (CCV)		11	0535	23.12	8.562	8.79	103.2	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/2/11	0710	1.413	7807	03-2011	1.426→1.415	(P) F
CAL ICV (CCV)		11	0545	11	11	11	1.399	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		2/2/11	0705	4.0	7696	2/3/11	4.05→4.00	(P) F
(CAL) (ICV) CCV		11	11	7.0	2002012	Jan 2012	7.00→7.01	(P) F
(CAL) (ICV) CCV		11	11	10.0	7796	3/1/2011	9.69→9.95	(P) F
CAL ICV (CCV)		11	0540	4.0	Samp		4.14	(P) F
CAL ICV (CCV)		11	11	7.0	as		7.04	(P) F
CAL ICV (CCV)		11	11	10.0	above		9.92	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/2/11	0715	240 @ 25°C	2244	03/2015	235.6→240.2	(P) F
CAL ICV (CCV)		11	0550	11	11	11	237.1	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 1.0 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	2/2/11	2.2→1.00	(P) F
CAL ICV (SCV)	11	1.1	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	2/2/11	9.6→10	(P) F
CAL ICV (CCV)	11	9.9	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LL34 Project #: TR0272 Field Personnel: J. BARTELT

Water Quality Meter - Model/Serial #: YSI 556 MPS - 08A100738 Turbidimeter - Model/Serial # LaMotte - ME12153

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		2/3/11	0656	22.65	8.644	8.35/8.64	96.6/99.9	(P) F
CAL ICV (CCV)		2/3/11	1621	21.91	8.761	8.69	99.8	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/3/11	0708	1.413	7807	3/11	1.446/1.413	(P) F
CAL ICV (CCV)		2/3/11	1628	"	"	"	1.404	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		2/3/11	0700	4.0	2003526	3/12	3.89/4.00	(P) F
CAL (ICV) CCV		"	"	7.0	2003012	4/12	7.25/7.0	(P) F
CAL (ICV) CCV		"	"	10.0	7796	3/11	9.94/10.0	(P) F
CAL ICV (CCV)		2/3/11	1623	4.0	same	as	3.93	(P) F
CAL ICV (CCV)		"	"	7.0		above	7.09	(P) F
CAL ICV (CCV)		"	"	10.0			9.81	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/3/11	0711	240@22°	2244	3/15	238.9/240	P F
CAL ICV (CCV)		2/3/11	1629	"	"	"	236.5	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	2/3	10.48/10	(P) F
CAL ICV (CCV)	2/3	10.17	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC39 Project No.: TRE272 Task: _____ Date: 2/1/11 Sampled By: J. BARTLETT

Station (Well ID): BW0001A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) A Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): ~~Retra~~ Geopump Purge Rate: ~0.15 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0828 Time @ End of Purging: 0848 Total Purging Time: 20mm Depth of Pump or Intake Tubing: 24.5 ft. (BTOC)

Water Level: 5.3 ft ~~Bels~~ BTOC Total Well Depth: 26 ft BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.52 gal

0.02 gal/ft

screen 23-26

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0828	Start	begin	purge								
0838	0.5 1.25	23.73	7.39	1.207	11.7	0.62	-148.6	4.9	0.804	clear	
0843	1 1.75	23.80	7.43	1.204	7.30	0.61	-147.6	4.8	0.801	"	
0946	1.5 2.0	23.62	7.44	1.203	4.49	0.61	-153.3	0.41	0.802	"	
0848	2 2.25	23.75	7.45	1.203	5.68	0.61	-154.2	0.40	0.801	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC39-BW0001A-024.5-20110201 Time Collected: 0848 Comments: VOC + HBA

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

~~0.041(0.035×36)+0.5(0.2)~~ ~~for 3/8" → (0.006 gal/ft)(36) = 0.216 gal +0.25 = 0.466 gal~~ for ¼" → (0.0026 gal/ft)(36 ft) + 0.25 gal = 0.34 gal ~ 1.04 qt

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/1/11 Sampled By: J. BARTLEIT

Station (Well ID): BW0001B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~~~0.15~~ gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0916 Time @ End of Purging: 0936 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.4' BTOC Total Well Depth: 33 ft BGS Reference: TOC Well diameter: ~~31.5~~ 3/4 in. Volume in well: 0.66 gal

3/4" 0.028 gal/ft

Screen 30-33 ft BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0916	Start	begin	purge								
0926	0.5 1.0	24.00	7.50	2.339	14.8	1.22	-154.9	0.46	1.549	clear	
0930	1 1.25	24.03	7.50	2.329	12.9	1.22	-150.9	0.41	1.541	"	
0933	1.5 1.5	24.02	7.50	2.316	8.09	1.21	-147.3	0.36	1.534	"	
0936	2 2.0	24.00	7.49	2.310	9.86	1.21	-145.9	0.33	1.531	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001B-031.5-20110201 Time Collected: 0936 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

~~For 3/8" → (0.006 gal/ft)(43 ft) + 0.25 gal = 0.51 gal~~ For ¼" → (0.0026 gal/ft)(43 ft) + 0.25 gal = 0.36 gal ~ 1.10 gal

Monitor Well Sampling

Site: LC34 Project No.: TR0772 Task: _____ Date: 2/1/14 Sampled By: J. BARTLETT

Station (Well ID): BW0001C Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.15 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1013 Time @ End of Purging: 1031 Total Purging Time: 18 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.89 ft BTOC Total Well Depth: 40 ft BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.8 gal

3/4" → 0.028 gal/ft

Screen 87-40 ft BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
~~1041~~ 1013	Start	begin purge									
1021	0.5 1.0	24.45	7.60	2.666	20.2	1.40	-165.6	0.37	1.761	clear	
1025	1 1.5	24.51	7.55	2.812	9.35	1.47	-161.4	0.28	1.849	"	
1028	1.5 1.75	24.42	7.53	2.847	8.78	1.49	-157.5	0.28	1.873	"	
1031	2 2.0	24.37	7.52	2.876	8.15	1.51	-150.1	0.28	1.895	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001C-038.5-20140201

Sample ID: _____ Time Collected: 1031 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

~~For 3/16 → (0.006 gal/ft)(50 ft) + 0.25 gal = 0.55 gal~~

For ¼" → (0.0026 gal/ft)(50 ft) + 0.25 gal = 0.38 gal ~ 1.14 gal

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/1/11 Sampled By: J. BARTLETT

Station (Well ID): BW0001D Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.15 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1245 Time @ End of Purging: 1307 Total Purging Time: 22 min Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 5.8 ft BTOC Total Well Depth: 47 ft BLS Reference: TOC Well diameter: 3/4" in. Volume in well: 0.94 gal

3/4" = 0.027 gal/ft

Screen 44-47 ft BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1245	Start	begin purge									
1250	0.5 1.0	25.12	7.41	3.204	10.95	1.67	-126.6	0.43	2.080	clear	
1300	1 1.25	25.14	7.40	3.191	10.29	1.66	-125.2	0.40	2.069	"	
1304	1.5 1.5	25.10	7.37	3.191	7.54	1.66	-123.3	0.39	2.069	"	
1307	2 1.8	25.16	7.36	3.194	4.89	1.66	-121.6	0.36	2.071	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001D-045.5-20110201 Time Collected: 1307 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

For 1/4" → (0.0026 gal/ft)(57 ft) + 0.25 gal = 0.40 gal ~ 1.2 gal

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/1/11 Sampled By: J. BARTLETT

Station (Well ID): BW0001E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1330 Time @ End of Purging: 1346 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 5.68 ft BTOC Total Well Depth: 54 ft BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.08 gal

Screen 51-54 ft BLS 3/4" → 0.02 gal/ft

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1330	Start	begin purge									
1338	0.5 1.0	24.84	7.74	2.694	14.4	1.39	-149.3	0.52	1.755	clear	
1341	1 1.25	24.89	7.72	2.702	11.3	1.40	-162.3	0.52	1.759	"	
1344	1.5 1.5	24.90	7.69	2.705	9.67	1.40	-153.3	0.47	1.761	"	
1346	2 1.75	24.93	7.69	2.706		1.40	-150.1	0.37	1.763	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001E-052.5-20110201

Sample ID: _____ Time Collected: 1346 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

for ¼" → (0.0026 gal/ft)(54 ft) + 0.25 gal = 0.42 gal ~ 1.25 gal

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/1/11 Sampled By: J. BARTLETT

Station (Well ID): BW0001P Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1412 Time @ End of Purging: 1430 Total Purging Time: 18 min Depth of Pump or Intake Tubing: 59.5 ft. (BTOC)

Water Level: 6.11 ft. BTOC Total Well Depth: 61 ft BLS Reference: TOC Well diameter: 3/4" in. Volume in well: 1.22 gal

3/4" → 0.02 gal/ft.

screen 58-61 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1412	Start	begin	purge								
1422	0.5 1.0	24.92	7.72	2.791	6.10	1.45	-163.4	0.39	1.817	clear	
1425	1 1.25	24.96	7.67	2.806	7.01	1.45	-151.8	0.40	1.826	"	
1427	1.5 1.5	24.96	7.65	2.809	8.84	1.45	-153.5	0.38	1.827	"	
1430	2 1.8	24.91	7.64	2.809	8.62	1.46	-152.0	0.37	1.827	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001P-059.5-20110201 Time Collected: 1430 Comments: VOC, nBA

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

for 1/4" → (0.0026 gal/ft)(71 ft) + 0.25 gal = 0.44 gal ~ 1.3 gal

Monitor Well Sampling

Site: LCJ4 Project No.: TR0272 Task: — Date: 02/01/11 Sampled By: K Matthato

Station (Well ID): DW0002A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GEo Pump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI MPS 556 Water Level Meter: Solinst

Time @ Start of Purging: 1400 Time @ End of Purging: 1419 Total Purging Time: 19 min Depth of Pump or Intake Tubing: 24.5 ft. (BTOC)

Water Level: 5.42 ft Total Well Depth: 26 ft Reference: TOC Well diameter: 3/4 in. Volume in well: 0.52 gal

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1400	Start	24.61	8.10	1.196	12.3	0.57	-126.3	2.5	0.755	clear	
1405	0.5	24.69	7.51	1.261	1.89	0.63	-162.9	0.33	0.827		
1410	1	24.74	7.46	1.286	1.85	0.64	-167.0	0.28	0.840		
1413	~~1.5~~ 1.3	24.72	7.44	1.286	1.91	0.64	-168.8	0.23	0.840		
1416	~~2~~ 1.6	24.70	7.44	1.284	1.48	0.64	-170.1	0.20	0.839		
1419	~~2.5~~ 1.9	24.70	7.44	1.283	1.26	0.64	-170.2	0.19	0.839		
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LCJ4-DW0002A-C24.5-20110201 Time Collected: 1419 Comments: VOCs + n DA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

0.041 x 26 x 30 = 0.078 + 0.5 = 0.578 gal x 3 = 1.73

Monitor[illegible] Well Sampling

Site: LCY4 Project No.: TH0272 Task: — Date: 02/01/11 Sampled By: R DAGHETO

Station (Well ID): DW0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GEOPUMP Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST

Time @ Start of Purging: 1324 Time @ End of Purging: 1342 Total Purging Time: 18 min Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.65 ft Total Well Depth: 33 ft Reference: TOC Well diameter: 2/4 in. Volume in well: 0.66 gal

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1324	Start	24.78	7.91	0.983	39.2	0.76	-162.3	2.89	0.998	clear	
1329	0.5	24.62	7.61	1.961	6.72	1.01	-151.1	0.38	1.279		
1334	1	24.69	7.58	2.075	3.01	1.06	-170.9	0.37	1.359		
1337	~~1.5~~ 1.3	24.66	7.57	2.094	6.28	1.07	-174.1	0.35	1.371		
1340	~~2~~ 1.6	24.64	7.55	2.103	5.28	1.08	-181.5	0.32	1.376		
1342	~~2.5~~ 1.8	24.70	7.56	2.112	3.65	1.08	-182.9	0.30	1.381		
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LCY4-DW0002-01,5-20110201 Time Collected: 1342 Comments: VOCs + MBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= ~~gal~~

0.0026 x 974 = 0.096 + 0.5 = 0.596 gal x 3 = 1.78 gal

Monitoring Well Sampling

Site: EC04 Project No.: TA0272 Task: — Date: 2/1/11 Sampled By: N DAPARTO

Station (Well ID): BW0002C Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): QED Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1247 Time @ End of Purging: 1307 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.17 ft Total Well Depth: 40 ft Reference: TOC Well diameter: 3/4 in. Volume in well: 0.5 gal

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1247	Start	24.91	7.82	1.922	60.4	0.98	-79.3	2.5	1.245	cloudy	
1252	0.5	24.72	7.70	2.419	21.0	1.25	-161.8	0.55	1.588	clear	
1257	1 1.0	24.72	7.67	2.499	4.76	1.29	-174.7	0.36	1.627	clear	
1300	~~1.5~~ 1.5	24.70	7.68	2.555	0.24	1.32	-182.1	0.42	1.672	↑	
1302	na ~~2~~ 2.0	24.75	7.68	~~2.573~~	0.0	1.33	-184.5	0.37	1.674	↓	
~~1305~~ 1307	~~2.5~~ 2.5	24.70	7.69	2.617	0.0	1.36	-186.9	0.37	1.712		
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Used LaMotte 2020e for turbidity

Sample ID: EC04-BW0002C-038.5-20110201 Time Collected: 1307 Comments: VOC + NBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal +0.5 1.81

0.25 in tubing = 0.0026 gal/ft X 40 = 0.104 X 3 = ~~0.31~~

Monitoring Well Sampling

Site: LC14 Project No.: TR0272 Task: — Date: 2/1/11 Sampled By: K DARLATO

Station (Well ID): BW0020 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GEOpump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST

Time @ Start of Purging: 1014 Time @ End of Purging: 1038 Total Purging Time: 24 min Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 5.95 ft Total Well Depth: 47 ft Reference: TOC Well diameter: 2 1/4 in. Volume in well: 0.94 gal

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1014	Start	24.14	7.68	2.300	33.8	1.22	-74.5	2.45	1.565	clear	
1019	0.5	24.24	7.66	2.594	22.7	1.36	-147.2	0.75	1.711	clear	
1024	1	24.09	7.65	2.641	1.75	1.39	-154.3	0.60	1.750	clear	
1029	1.5	24.20	7.63	2.671	0.0	1.40	-151.8	0.55	1.762		
1032	~~2~~ 1.8	24.27	7.61	2.690	0.0	1.41	-151.1	0.42	1.766		
1034	~~2.5~~ 2.0	24.11	7.61	2.678	0.0	1.41	-152.4	0.28	1.769		
1038	~~3~~ 2.4	24.32	7.61	2.693	0.0	1.41	-150.6	0.25	1.767		

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC14-BW0020-045.5-20110201 Time Collected: 1038 Comments: Well Lander 2020c for turbidity VOCs + NDA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

~~0.004 x 47 = 0.28 + 0.5 = 0.78 ~ 2.4 gal~~

0.25 inch tubing = 0.0026 gal/ft

0.0026 x 47 = 0.12 + 0.5 = 0.62 gal

Monitor Well Sampling

Site: LCJ4 Project No.: TR0272 Task: — Date: 2/1/11 Sampled By: A DAIRAD

Station (Well ID): DW0002E Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic X Centrifugal ___ Bladder

Pump (Make & Model): GEOPump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST

Time @ Start of Purging: 0922 Time @ End of Purging: 0952 Total Purging Time: 30 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 6.12 ft Total Well Depth: 54 ft Reference: TOC Well diameter: 3/4 in. Volume in well: 1.05 gal

0.75in = 0.02 gal/ft

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0922	~~Start~~	20.74	7.56	2.570	14.5	1.37	-106.6	2.04	1.720	cloudy/gray	
0930	~~0.5~~ 0.8	20.75	7.55	2.600	30.4	1.37	-160.5	0.70	1.735	gray	
0935	~~1~~ 1.3	20.65	7.55	2.601	13.8	1.38	-162.5	0.60	1.735	clear	
0940	~~1.5~~ 1.8	20.67	7.56	2.603	22.0	1.37	-163.0	0.54	1.736	clear	
0945	~~2~~ 2.0	20.62	7.57	2.601	6.68	1.38	-156.8	0.48	1.735	clear	
0948	~~2.5~~ ~~2.5~~	20.64	7.57	2.603	6.27	1.38	-154.2	0.47	1.738	clear	
0950	~~3~~ 2.5	20.66	7.58	2.602	10.67	1.37	-154.7	0.40	1.736	clear	
0952	2.9 ~~2.7~~	20.67	7.58	2.602	~~7.49~~	1.38	-154.4	0.41	1.736	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LCJ4-DW0002E-052.5-20110201 Time Collected: 0952 Comments: VOCs + NDA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

3/8 = 0.006 gal/ft x 60 ft = 0.36 gal +0.5 = 0.86 gal

0.25 = 0.0026 gal/ft = 0.156

= 0.656 gal

Monitor Well Sampling

Site: LCJ4 Project No.: TR0272 Task: — Date: 2/1 Sampled By: R DAPKATO

Station (Well ID): BW0002F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic X Centrifugal ___ Bladder

Pump (Make & Model): SP2 Pump Purge Rate: <0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST

Time @ Start of Purging: 0827 Time @ End of Purging: 0857 Total Purging Time: 30 MIN Depth of Pump or Intake Tubing: 59.5 ft. (BTOC)

Water Level: 6.1 ft Total Well Depth: 61 ft Reference: TOC Well diameter: 3/4 in. Volume in well: 1.22 gal

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0827	Start										
0832	0.5	22.89	6.99	2.5M	56.3	1.40	-13.9	1.45	1.757	clear	cloudy
0837	1	22.16	7.07	~~2.112~~	9.26	1.44	-74.1	0.64	1.709	clear	
0842	1.5	22.98	~~6.80~~ 7.12	2.674	3.33	1.44	-88.0	0.58	1.708	clear	
0844	~~2~~ 1.7	22.00	7.17	2.675	2.90	1.44	-92.1	0.55	1.707	clear	
0846	~~2.5~~ 1.9	22.16	7.22	2.681	2.61	1.44	-92.7	0.52	1.706	clear	
0848	~~3~~ 2.0	22.06	7.25	2.680	2.38	1.45	-95.4	0.52	1.712	clear	
0852	2.5	22.88	7.21	2.677	2.16	1.45	-102.9	0.50	1.714	clear	
0854	2.7	22.86	7.30	2.672	2.22	1.45	-105.6	0.52	1.714	clear	
0857	3.0	22.90	7.37	2.684	2.16	1.45	-108.5	0.52	1.715	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LCJ4-BW0002-0595-20020201 Time Collected: 0857 Comments: VOCs w/ NBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

~~3/16 in = 0.006 gal/ft X 70 ft = 0.42 gal + 0.5 = 0.92 gal~~

0.25 inch = 0.0026 gal/ft
0.0026 X 70 = 0.18 = 0.68 gal

Monitoring Well Sampling

Site: LC 34 Project No.: 140272 Task: _____ Date: 2/1/11 Sampled By: J. BARTLETT

Station (Well ID): BW0003A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Grundfos Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1454 Time @ End of Purging: 1511 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 24.5 ft. (BTOC)

Water Level: 5.47 ft BTOC Total Well Depth: 26 ft BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.52 gal

3/4" → 0.02 gal/ft

Screen 23-26 ft BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1454	Start	begin purge									
1503	0.5 0.8	24.40	7.52	~~9.21~~ 1425	9.21	0.72	-151.0	0.50	0.938	clear	
1506	1.2 1 ~~0.8~~	24.36	7.46	1,434	9.56	0.73	-153.8	0.39	0.944	"	
1508	1.5 1.5	24.32	7.45	1.439	9.78	0.73	-155.4	0.39	0.948	"	
1511	2 1.75	24.34	7.43	1.442	10.26	0.73	-151.9	0.35	0.950	"	
	2.5					↓					
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0003A-024.5-20110201

Sample ID: _____ Time Collected: 1511 Comments: VOC, 4DA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

1/4" → (0.0026 gal/ft)(36 ft) + 0.25 gal = 0.34 gal ~ 1.0 gal

Monitor. Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/1/11 Sampled By: J. BARTLETT

Station (Well ID): BW0003B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1531 Time @ End of Purging: 1552 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.61 ft. BTOC Total Well Depth: 33 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.66 gal

Screen 30 – 33 ft. BLS

for 3/4" → 0.02 gal/ft

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1531	Start	begin pump									
1539	0.5 0.8	24.37	7.71	1.931	35.5	0.99	-168.5	0.31	1.269	clear	
1542	1 1.0	24.35	7.70	1.923	34.1	0.99	-174.0	0.28	1.264	"	
1546	1.5 1.5	24.36	7.68	1.904	23.5	0.98	-176.9	0.23	1.253	"	
1548	2 1.7	24.35	7.67	1.899	18.9	0.98	-187.4	0.24	1.250	"	
1550	2.5 1.8	24.37	7.66	1.896	15.3	0.97	-193.0	0.24	1.248	"	
1552	3 2.0	24.35	7.66	1.891	13.4	0.97	-196.4	0.22	1.245	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003B-031.5-20110201 Time Collected: 1552 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0024 gal/ft)(43 ft) + 0.25 gal = 0.36 gal ~ 1.08 gal

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: Jan Barfus

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 1245 Time @ End of Purging: 1305 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.66' Total Well Depth: 40 Reference: TOC Well diameter: 0.5 in. Volume in well: NA

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1245	Start	24.02	7.70	1.696	13	0.92	-34.8	0.97	1.228	clear	
1250	0.5	24.00	7.67	2.205	4.9	0.46	-102.0	0.46	1.468	"	
1255	1	23.96	7.72	2.381	5.3	0.25	-136.8	0.22	1.581	"	
1300	1.5	23.92	7.73	2.402	7.7	1.26	-141.9	0.18	1.594	"	
1305	2	23.94	7.73	2.417	7.0	1.27	-143.2	0.20	1.604	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-0305-20110202 Time Collected: 1310 1305 Comments: VOCs, 4 BA

When using 3/16-in. ID tubing EV= ((~~0.041~~) 0.0026 (0.035x tubing length)) 42 +~~0.5~~ 0.25 (flow tru vol)= ~~0.5~~ 0.25 gal

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: Jan Barfus

Station (Well ID): BW0003D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 1315 Time @ End of Purging: 1335 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 6.70' Total Well Depth: 47 Reference: TOC Well diameter: 0.5 in. Volume in well: NA

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1315	Start	23.92	7.75	2.420	60	1.27	-107.5	0.48	1.605	Gray	
1320	0.5	24.03	7.73	2.491	17	1.31	-115.2	0.29	1.656	clear	
1325	1	24.02	7.72	2.534	12	1.33	-116.4	0.25	1.683	"	
1330	1.5	24.02	7.71	2.570	6.8	1.35	-114.4	0.22	1.704	"	
1335	2	24.01	7.71	2.585	5.1	1.36	-114.6	0.21	1.714	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003D-045.5-20110202 Time Collected: 1335 Comments: VOCs, nBA

When using 3/16-in. ID tubing EV= ~~(0.041)~~ 0.0026 (0.035x tubing length) 50 + ~~0.5~~ 0.25 (flow tru vol) ~~0.3~~ 0.25 gal

Monitoring Well Sampling

Site: LCSY Project No.: TR0272 Task: — Date: 02/01/2011 Sampled By: K MARRIOTT

Station (Well ID): BW0003E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic X Centrifugal ___ Bladder

Pump (Make & Model): GEO Pump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI SSG MPS Water Level Meter: SOLINST

Time @ Start of Purging: 1518 Time @ End of Purging: 1538 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 6.64 ft Total Well Depth: 54 ft Reference: TOC Well diameter: 3/4 in. Volume in well: 1.08 gal

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1518	Start	23.99	7.63	2.372	65	1.24	-48.5	2.02	1.609	cloudy	
1523	0.5	24.03	7.67	2.591	27	1.26	-104.0	0.87	1.717	clear	
1528	1	24.12	7.65	2.618	8.4	1.28	-134.6	0.40	1.731		
1533	1.5	24.10	7.65	2.619	4.6	1.28	-139.8	0.35	1.732		
1535	~~2~~ 1.7	24.20	7.65	2.622	3.9	1.28	-144.5	0.32	1.730		
1538	~~2.5~~ 2.0	24.23	7.65	2.629	2.9	1.28	-148.7	0.32	1.735		
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LCSY-BW0003E-052.5-20110201 Time Collected: 1538 Comments: Vols + DA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

0.0026 X 60 = 0.156 + 0.5 = (0.656 gal) X 3 = 1.96 gal

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: — Date: 02/01/11 Sampled By: K DAYKATO

Station (Well ID): DW0003F Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GEOPUMP Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1440 Time @ End of Purging: 1501 Total Purging Time: 21 min Depth of Pump or Intake Tubing: ~~60~~ 59.5 ft. (BTOC)

Water Level: 5.93 ft Total Well Depth: 61.4 Reference: TOC Well diameter: 3/4 in. Volume in well: 1.22 gal

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1440	Start	24.64	7.51	2.688	85	1.40	-55.1	1.70	1.765	clear	
1445	0.5	24.38	7.59	2.791	5.2	1.46	-127.1	0.14	1.832		
1450	1	24.44	7.60	2.802	2.6	1.47	-128.5	0.25	1.841		
1455	1.5	24.27	7.60	2.802	2.2	1.47	-141.1	0.26	1.845		
1458	~~2~~ 1.7	24.21	7.61	2.804	2.5	1.47	-142.0	0.25	1.847		
1459	~~2.5~~ 1.9	24.30	7.60	2.806	2.6	1.47	-141.1	0.24	1.849		
1501	~~3~~ 2.1	24.27	7.61	2.803	2.4	1.47	-142.0	0.24	1.848		

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-DW0003F-0595-20110201 Time Collected: 1501 Comments: VOCs + NDA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow thru vol)= ___ gal

0.00026 X 65 = 0.1495 = 0.145 gal X 3 = 1.929 gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/3/11 Sampled By: J. BARTLETT

Station (Well ID): MW0025 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0830 Time @ End of Purging: 0846 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 27.5 ft. (BTOC)

Water Level: 5.98 Ft. BTOC Total Well Depth: 30 A.B.G.S Reference: TOC Well diameter: 2 in. Volume in well: 4.89 gal

Screen 25-30 Ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0830	Start	begin purge									
0837	0.5 | 1.0	23.95	7.26	1.211	11.6	0.61	-127.1	0.64	0.804	clear	
0840	1 | 1.5	23.99	7.27	1.222	10.53	0.62	-125.8	0.67	0.812	"	
0843	1.5 | 1.9	23.89	7.29	1.236	12.2	0.63	-135.4	0.63	0.822	"	
0846	2 | 2.1	24.03	7.30	1.246	10.28	0.63	-137.9	0.61	0.827	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-MW0025-027.5-20110203

Sample ID: _____ Time Collected: 0846 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041)(0.035)(90) +0.25 = 0.31 gal x3 = 0.93 gal

Monitor Well Sampling

Site: UC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: J. BARTLETT

Station (Well ID): MW0021D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Grotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1445 Time @ End of Purging: 1459 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 37.5 ft. (BTOC)

Water Level: 6.31 ft. BTOC Total Well Depth: 40 ft-BGS Reference: TOC Well diameter: 2 in. Volume in well: 6.52 gal

Screen 35-40 ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1445	Start	begin purge									
1457	0.5 ~~0.75~~	24.58	7.38	2.705	5.02	1.41	-84.7	0.52	1.781	clear	
1455	1 1.25	24.61	7.38	2.763	4.42	1.44	-90.9	0.48	1.813	"	
1457	1.5 1.5	24.65	7.38	2.772	4.23	1.44	-92.3	0.45	1.816	"	
1459	2 1.75	24.62	7.38	2.814	5.97	1.47	-94.8	0.42	1.842	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: UC34-MW0021D-0375-20110202 Time Collected: 1459 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041)(0.035)(50) +0.25 = 0.32 gal x3 = 0.96 gal

Fuel conductivity CCV

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: J. BARTLETT

Station (Well ID): LW0002D1 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1406 Time @ End of Purging: 1423 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 6.52 ft. BTOC Total Well Depth: 55 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 8.9 gal

Screen 50-55 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1406	Start	begin purge									
1415	0.5 1.0	24.59	7.72	2.860	21.2	1.50	-69.8	0.86	1.877	clear	
1418	1 1.5	24.61	7.70	2.915	10.85	1.53	-81.1	0.59	1.912	"	
1421	1.5 1.8	24.57	7.70	2.939	7.43	1.54	-86.2	0.53	1.927	"	
1423	2 2.0	24.56	7.70	2.944	6.24	1.54	-90.0	0.49	1.929	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-LW0002D1-0525-20110202 Time Collected: 1423 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= _____ gal

(0.041)(0.035)(65) + 0.25 = 0.34 gal x 3 = 1.03 gal

fail conductivity QC

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: J. BARTLETT

Station (Well ID): MW0067D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump / Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1037 Time @ End of Purging: 1058 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 40.5 ft. (BTOC)

Water Level: 5.81 ft BTOC Total Well Depth: 43 ft BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.86 gal

3/4 → 0.028 l/ft

Screen 38 - 43 ft BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1037	Start	begin purge									
1045	0.5 1.0	24.88	7.70	2.993	45.5	1.56	-214.4	0.53	1.950	clear	
1049	1 1.5	24.91	7.72	2.995	24.1	1.56	-230.5	0.43	1.950	"	
1052	1.5 1.9	24.94	7.73	2.996	8.93	1.56	-239.3	0.38	1.949	"	
1055	2 2.1	24.94	7.74	2.997	3.65	1.56	-246.0	0.35	1.949	"	
1058	2.5 2.5	24.98	7.74	2.997	4.06	1.56	-248.8	0.32	1.948	"	
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-MW0067D-040.5-20110202 Time Collected: 1058 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041)(0.035)(53)+0.2 = 0.28 gal x3 = 0.8 gal

Field conductivity QC

Monitor_ Well Sampling

Site: LC34 Project No.: 480272 Task: _____ Date: 2/3/11 Sampled By: J. BARTLETT

Station (Well ID): MW0067D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic X Centrifugal ___ Bladder

Pump (Make & Model): Grundfos Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1410 Time @ End of Purging: 1449 Total Purging Time: 39 min Depth of Pump or Intake Tubing: ~30 ft. (BTOC)

Water Level: 4.9 ft. BTOC Total Well Depth: 73 ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.5 gal

for 3/4" → 0.02 gal/ft

Screen 63-73 ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1410	Start	begin purge									
	0.5		water level meter cannot fit in well w/ tubing to confirm stabilization								
	1										
1440	1.5 3.0	24.48	7.54	2.731	9.85	1.43	-103.4	0.30	1.793	clear	
1445	2 3.5	24.61	7.54	2.737	10.04	1.43	-98.2	0.30	1.792	"	
1449	2.5 4.0	24.63	7.53	2.739	13.6	1.43	-98.8	0.30	1.791	"	
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-MW0067D1-068.0-20110203 Time Collected: 1449 Comments: VOC, nRA tubing @ ~30 ft BGS, obstructed

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= _____ gal

(0.041)(0.035)(83) +0.25 = 0.37 gal x 3 = 1.10 gal

Sampling per DEP-SOP / FS 2200 GW Samp - 2.3

Monitoring Well Sampling

Site: LC39 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: J. BARTLETT

Station (Well ID): IW0070D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump / Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1252 Time @ End of Purging: 1307 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 40.5 ft. (BTOC)

Water Level: 5.25 Ft. BTOC Total Well Depth: 43 Ft-BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.86 gal

3/4" → 0.02 gal/ft

Screen 98-43 Ft-BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1252	Start	Begin purge					-221.0				
1259	0.5 / 0.8	25.11	7.73	3.069	5.04	1.59	0.68	0.68	1.992	clear	
1302	1 / 1.1	25.10	7.74	3.076	3.16	1.60	-229.8	0.60	1.996	"	
1305	1.5 / 1.65	25.10	7.74	3.076	2.41	1.60	-238.6	0.52	1.996	"	
1307	2 / 1.95	25.10	7.74	3.076	2.41	1.60	-241.5	0.46	1.996	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC39-IW0070D-0405-20110207 Time Collected: 1307 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041)(0.035)(53) + 0.25 = 0.33 gal x 3 = 0.98 gal

Turbidity CCV

Monitor. _ Well Sampling

Site: LC34 Project No.: TRO272 Task: _____ Date: 2/2/11 Sampled By: J. BARTLETT

Station (Well ID): SW007001 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1318 Time @ End of Purging: 1333 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 70.0 ft. (BTOC)

Water Level: 5.55 Ft. BTOC Total Well Depth: 75' Ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.5

Screen 65-75 Ft. BLS 3/4" → 0.02 gal/ft

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1318	Start	begin purge									
1324	0.5 0.5	24.76	7.69	3.001	10.31	1.57	-151.1	0.72	1.965	clear	
1328	1 1.0	24.71	7.69	3.082	6.93	1.61	-151.2	0.47	2.017	"	
1330	1.5 1.25	24.71	7.69	3.097	6.07	1.62	-151.2	0.41	2.025	"	
1333	2 1.5	24.70	7.69	3.103	3.53	1.63	-150.6	0.38	2.029	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW007001-070.0-20110202

Sample ID: _____ Time Collected: 1333 Comments: VOC, HBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041)(0.035)(85) + 0.25 = 0.37 gal x3 = 1.1 gal

fail conductivity CCV

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: Jan Barfus

Station (Well ID): IW0071D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 1040 Time @ End of Purging: 1100 Total Purging Time: 20 min. Depth of Pump or Intake Tubing: 40.5 ft. (BTOC)

Water Level: 3.02' Total Well Depth: 43 Reference: TOC Well diameter: 0.5 in. Volume in well: NA

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1040	Start	22.94	6.91	2.186	13	1.17	-90.7	0.75	1.491	clear	
1045	0.5	23.03	7.30	2.315	3.3	1.24	-116.3	0.26	1.564	"	
1050	1	23.06	7.49	2.330	1.3	1.25	-131.0	0.19	1.573	"	
1055	1.5	23.07	7.52	2.331	0.60	1.25	-134.5	0.18	1.573	"	
1100	2	23.10	7.54	2.331	0.95	1.24	-136.7	0.17	1.573	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0071D-040.5-20110202 Time Collected: 1100 Comments: VOCs, MBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)=0.3 gal
45 0.25

Monitor Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: Jan Barfus

Station (Well ID): IW007101 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 1105 Time @ End of Purging: 1125 Total Purging Time: 20 min. Depth of Pump or Intake Tubing: ~~80~~ 70 ft. (BTOC)

Water Level: 3.30' Total Well Depth: 75 Reference: TOC Well diameter: 0.5 in. Volume in well: NA

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1105	Start	23.03	7.67	2.131	12	1.14	-136.5	0.91	1.468	clear	
1110	0.5	22.97	7.62	2.342	4.2	1.25	-122.4	0.29	1.588	"	
1115	1	23.00	7.63	2.417	2.0	1.30	-114.8	0.22	1.635	"	
1120	1.5	23.02	7.64	2.446	1.2	1.31	-113.2	0.19	1.654	"	
1125	2	23.03	7.65	2.468	0.70	1.32	-112.1	0.19	1.668	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW007101-070,0-20110202 Time Collected: 1125 Comments: VOCs, MBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= 0.4 gal
78 0.25

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: J. BARTLETT

Station (Well ID): MW0076 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 650 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1535 Time @ End of Purging: 1554 Total Purging Time: 19 min Depth of Pump or Intake Tubing: 75.0 ft. (BTOC)

Water Level: 6.5 ft BTOC Total Well Depth: 80 ft BGS Reference: TOC Well diameter: 2 in. Volume in well: 13.09 gal

Screen 70-80 ft BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1535	Start	begin purge									
1543	0.5 0.75	24.13	7.68	2.895	45.6	1.53	-170.1	0.50	1.918	cloudy	
1546	1 1.0	24.16	7.68	2.925	31.6	1.55	-172.2	0.49	1.934	"	
1550	1.5 1.5	24.23	7.69	2.947	19.0	1.56	-173.7	0.43	1.945	clear	
1552	2 1.75	24.22	7.69	2.951	17.8	1.56	-173.3	0.43	1.947	"	
1554	2.5 2.0	24.25	7.69	2.954	15.6	1.56	-174.3	0.40	1.948	"	
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-MW0076-075.0-20110202 Time Collected: 1554 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041)(0.035)(90)+0.25 = 0.38 gal x 3 = 1.13 gal

fail conductivity CCV

Monitor[illegible] Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/3/11 Sampled By: J. BARTLETT

Station (Well ID): LTO015 Purge Method: ~~Pump~~ Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0920 Time @ End of Purging: 0954 Total Purging Time: 34 min Depth of Pump or Intake Tubing: 39.0 ft. (BTOC)

Water Level: 5.99 ft. BTOC Total Well Depth: 42 ft. BGS Reference: TOC Well diameter: 2 in. Volume in well: 6.8 gal

Screen 32 - 42 ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0920	Start	begin purge									
0929	0.5 1.0	23.94	7.56	2.621	36.1	1.38	-131.4	0.52	1.742	cloudy	
0932	1 1.25	23.91	7.56	2.646	35.4	1.40	-135.0	0.52	1.758	"	
0937	1.5 1.9	24.04	7.55	2.643	35.0	1.39	-143.7	0.40	1.750	"	
0941	2 2.25	23.96	7.55	2.640	31.9	1.39	-147.9	0.34	1.751	clear	
0947	2.5 3.0	24.16	7.56	2.652	25.9	1.39	-155.1	0.30	1.752	"	
0950	3 3.4	24.15	7.56	2.653	19.1	1.39	-159.3	0.27	1.753	"	
0952	3.5	24.12	7.56	2.653	18.1	1.40	-160.7	0.27	1.754	"	
0954	3.75	24.08	7.56	2.653	15.0	1.40	-162.4	0.26	1.755	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-LTO015-037.5-20110203 Time Collected: 0954 Comments: VOC, NBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

~~to cell~~ ¼" → (0.0026 gal/ft)(52) +0.25 = 0.38 gal x3 = 1.16 gal

Monitor[illegible] Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/3/11 Sampled By: J. BARTLETT

Station (Well ID): SS0016 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1008 Time @ End of Purging: 1042 Total Purging Time: 34 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 6.15 ft. BTOC Total Well Depth: 57 ft BGS Reference: TOC Well diameter: 2 in. Volume in well: 9.3 gal

Screen 47-57 ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1008	Start	[illegible]	[illegible]								
1015	0.5 0.5	24.14	7.64	2.709	37.3	1.43	-121.4	0.58	1.794	cloudy	
1021	1 1.25	24.26	7.63	2.789	50.4	1.47	-133.7	0.42	1.839	"	
~~1029~~ 1029	1.5 2.0	24.25	7.63	2.790	41.1	1.47	-138.9	0.31	1.840	"	
1034	2 2.5	24.20	7.64	2.785	21.0	1.47	-136.6	0.30	1.839	clear	
1038	2.5 2.9	24.12	7.63	2.781	16.9	1.47	-133.9	0.30	1.839	"	
1040	3 3.0	24.13	7.63	2.780	13.9	1.47	-131.8	0.31	1.837	"	
1042	3.1	24.18	7.63	2.779	13.7	1.46	-133.3	0.28	1.835	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-SS0016-052.0-20110203

'e ID: _____ Time Collected: 1042 Comments: VOC, MBA

'ing 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

for ¼" → (0.0026 gal/ft)(57 ft) + 0.5 gal = 0.42 gal x 3 = 1.3 gal

Monitor... Well Sampling

Site: LC34 Project No.: 190272 Task: _____ Date: 2/3/11 Sampled By: J. BARTLETT

Station (Well ID): JJ0019 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1110 Time @ End of Purging: 1149 Total Purging Time: 39 min Depth of Pump or Intake Tubing: 37.0 ft. (BTOC)

Water Level: 5.31 ft. BTOC Total Well Depth: 42 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 6.8 gal

Screen 32-42 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1110	Start	begin purge									
1119	0.5 0.9	23.99	7.61	1.789	46.4	0.93	-135.2	0.44	1.189	cloudy	
1126	1 1.75	23.97	7.63	1.872	46.4	0.97	-145.8	0.41	1.242	"	
1129	1.5 2.0	24.06	7.63	1.885	35.2	0.98	-148.3	0.41	1.249	"	
1134	2 2.5	24.24	7.64	1.908	31.7	0.98	-150.1	0.40	1.259	"	
1138	2.5 3.0	24.14	7.64	1.915	24.0	0.99	-154.1	0.36	1.267	clear	
1145	3 4.0	24.03	7.64	1.951	15.7	1.01	-158.7	0.32	1.293	"	
1147	4.1	24.04	7.64	1.956	11.9	1.01	-158.9	0.32	1.296	"	
1149	4.2	24.12	7.64	1.965	12.0	1.02	-159.6	0.31	1.300	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-JJ0019-0337-0-20110203 Time Collected: 1149 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

for ¼" → (0.0026 gal/ft)(52 ft) + 0.75 gal = 0.38 gal x 3 = 1.2 gal

Monitor[illegible] Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/3/11 Sampled By: J. BARTLETT

Station (Well ID): IJ0020 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1241 Time @ End of Purging: 1357 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 5.92 Ft. BTOC Total Well Depth: 57.4 BGS Reference: TOC Well diameter: 2 in. Volume in well: 9.3 gal

Screen 47.57 Ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1241	Start	begin purge									
1248	0.5 0.5	23.44	7.71	2.178	29.0	1.15	-79.3	0.57	1.474	clear	
1252	1 1.0	23.50	7.66	2.323	18.0	1.23	-100.6	0.45	1.558	"	
1254	1.5 1.25	23.56	7.67	2.354	15.6	1.25	-116.3	0.39	1.575	"	
1257	2 1.75	23.44	7.68	2.360	13.0	1.25	-121.0	0.35	1.582	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IJ0020-052.0-20110203 Time Collected: 1357 Comments: VOC, nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

For ¼" → (0.0026 gal/Ft)(47 Ft) + 0.25 gal = 0.42 gal x3 = 1.3 gal

Monitor[illegible] Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: Jan Barfus

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): ~~2"~~ Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 1535 Time @ End of Purging: 1555 Total Purging Time: 20 min. Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.64' Total Well Depth: 42 Reference: TOC Well diameter: 6 in. Volume in well: NA

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1535	Start	23.99	8.26	2.424	150	1.27	21.3	1.71	1.618	Lt Gray	
1540	0.5	24.01	7.97	2.628	15	1.39	17.5	0.24	1.745	clear	
1545	1	24.02	7.95	2.653	14	1.40	15.5	0.20	1.759	"	
1550	1.5	24.06	7.92	2.672	11	1.41	11.7	0.18	1.770	"	
1555	2	24.12	7.90	2.693	10	1.42	6.5	0.16	1.782	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20110202 Time Collected: 1555 Comments: VOCs, nBA

When using 3/16-in. ID tubing EV= ~~(0.011)~~ 0.0026 (0.035x tubing length) 45 + ~~0.1~~ 0.25 (flow tru vol) = 0.2 gal

Monitor[illegible] Well Sampling

Site: LC34 Project No.: TR0272 Task: _____ Date: 2/2/11 Sampled By: Jan Barfus

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 1445 Time @ End of Purging: 1515 Total Purging Time: 30 min. Depth of Pump or Intake Tubing: 52 ft. (BTOC)

Water Level: 5.70' Total Well Depth: 57 Reference: TOC Well diameter: 6 in. Volume in well: NA

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1445	Start	24.03	8.66	2.312	270	1.21	-50.5	0.20	1.530	Gray	
1450	0.5	24.02	8.68	2.305	60	1.21	-61.9	0.20	1.526	Lt Gray	
1455	1	24.03	8.71	2.294	33	1.20	-70.9	0.20	1.519	"	
1500	1.5	24.11	8.74	2.300	15	1.20	-81.5	0.19	1.520	clear	
1505	2	24.61	8.74	2.310	12	1.19	-83.3	0.16	1.513	clear	
1510	2.5	24.59	8.76	2.308	10	1.19	-89.4	0.16	1.512	"	
1515	3	24.52	8.76	2.304	11	1.19	-91.1	0.16	1.511	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-0520-20110202 Time Collected: 1515 Comments: VOCs, + BA

When using 3/16-in. ID tubing EV= ~~(0.041)~~ 0.0026 (0.035x 60 tubing length))+~~0.5~~ 0.25 (flow tru vol)= 0.26 gal

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: TR0272
Contractors: —

Date: 3/22/11
Task No.: 06

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: ✓
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

800: at office, calibrate, load vehicle.
945: on site - turn off system
wells sampled: RW0007 @ 1029
RW0008 @ 1121

1145: lunch
wells sampled: BW0002C @ 1253
BW000201 @ 1330
BW0020 @ 1405
BW0002I @ 1434
BW0001C @ 1501
BW0001E @ 1525
BW0003E @ 1552
duplicate
BW0003C @ 1621

1630: turn on system
1645: offsite.

1710: CCV calibration — end of day

Plans/Future Activities

- change level loggers to log data every 15 mins
- label IDW drum

3/22/11
Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 / ESTEP PAD Project #: TR0272 Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 02L001945 Turbidimeter - Model/Serial # LaMotte 2020e / ~~BAT~~ S.B. MC 12153

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		3/22	836	18.74	9.314	7.00	9.31	(P) F
CAL ICV (CCV)		↓	1716	26.9	7.983	8.213		(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		3/22	853	1.413	7807	3/11	1.485 / 1.413	(P) F
CAL ICV (CCV)		↓	1726	—	same as above	—	1.372	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) ICV CCV		3/22	839	4.0	2002034	1/12	3.74 / 4.00	(P) F
CAL ICV CCV		↓	↓	7.0	2002012	1/12	7.3 / 7.0	(P) F
CAL ICV CCV				10.0	~~7796~~ 2002035	7/11	9.50 / 10.0	(P) F
CAL ICV (CCV)			1721				4.17	(P) F
CAL ICV CCV				— same as above —			6.81	(P) F
CAL ICV CCV		↓	↓				9.83	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		3/22	855	240mV@25C	2294	3/15	252.9 / 240	(P) F
CAL ICV (CCV)		↓	1728	— same as above —			232.5	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	3/22	7.11 / 10	(P) F
CAL ICV (CCV)	↓	9.1	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments: _____

Geosyntec consultants

Monitor.. _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump / Geotech Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1013 Time @ End of Purging: 1029 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.15 ft BTOC Total Well Depth: 42 ft. BLS Reference: BTS Well diameter: 6 in. Volume in well: (1.469)(42) = 61.7 gl

Screen 35-42 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear.	
1013	Start	Begin Purge									
1022	0.5 1.0	24.29	7.45	2.220	6.05	1.14	-96.6	2.88	1.449	"	
1026	1 1.4	24.23	7.42	2.252	4.94	1.15	-103.2	2.53	1.464	"	
1029	1.5 1.7	24.19	7.40	2.278	3.03	1.17	-109.2	2.34	1.482	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20110322 Time Collected: 1029 Comments: VOC+10BA, VFA, Br & I, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → 0.0026 x 42 + 0.25 = 0.36 X 3 = 1.15 gal

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): MW0002I Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1418 Time @ End of Purging: 1434 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 27.5 ft. (BTOC)

Water Level: 6.35 ft. BTOC Total Well Depth: 30 ft. BLS Reference: BLS Well diameter: 2 in. Volume in well: 0.163 x 30 = 4.9 gal

Screen: 25-30 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1418	Start	Begin Purge								clear	
1428	0.5 1.0	25.16	7.23	0.864	5.47	0.42	-148.2	0.65	0.562	"	
1431	1 1.3	25.20	7.24	0.874	5.82	0.43	-146.2	0.73	0.569	"	
1434	1.5 1.5	25.18	7.26	0.882	3.74	0.43	-145.7	0.61	0.574	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002I-027.5-20110322 Time Collected: 1434 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

0.041 x 0.035 x 40 + 0.25 = 0.3 x 3 = 0.9 gal

Monitor. _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): FW00020 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) P Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~ 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst.

Time @ Start of Purging: 1348 Time @ End of Purging: 1405 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 37.5 ft. (BTOC)

Water Level: 6.75 Ft. BTOC Total Well Depth: 40 Ft. BLS Reference: BLS Well diameter: 2 in. Volume in well: 0.163 x 40 = 6.5 gal

Screen: 35-40 Ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										muddy	
1348	Start Begin Purge										
1358	0.5 1.0	24.81	7.42	1.920	6.56	0.97	-134.4	0.44	1.249	clear	
1401	1 1.3	24.73	7.42	1.948	11.7	0.99	-138.4	0.53	1.269	"	
1405	1.5 1.6	24.77	7.40	1.963	7.15	1.02	-143.6	0.48	1.278	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-FW00020-037-5-20110322 Time Collected: 1405 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

0.041 x 0.035 x 50 + 0.25 = 0.3 x 3 = 1 gal

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): BW0001C Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Bravamp Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1446 Time @ End of Purging: 1501 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 8.2 ft - BTOC Total Well Depth: 40 ft. BLS Reference: BLS Well diameter: 1 in. Volume in well: 0.041 x 40 = 1.6 gal

Screen: 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear.	
1446	Start	Begin Purge				1.32					
1456	0.5 1.0	24.68	7.31	2.556	6.80	~~6.80~~ 1.33	-164.5	0.77	1.664	"	
1458	1 1.2	24.62	7.33	2.579	6.82	1.33	-164.0	0.65	1.678	"	
1501	1.5 1.6	24.64	7.34	2.592	4.82	1.34	-163.3	0.53	1.685	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001C-038.5-20110322 Time Collected: 1501 Comments: VOC + NBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

Vol = 0.0026 x 45 + 0.25 = 0.37 x 3 = 1.1 gal

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): BW 0002C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech / Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1237 Time @ End of Purging: 1253 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.6 ft. BTOC Total Well Depth: 40 ft. BLS Reference: BLS Well diameter: 1 in. Volume in well: 0.041 x 40 = 1.6 gal

Screen: 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1234	Start Begin Purge									clear	
1247	0.5 1.0	24.67	7.71	2.517	19.3	1.30	-191.2	0.32	1.639	"	
1250	1 1.3	24.65	7.70	2.537	13.0	1.31	-202.4	0.39	1.650	"	
1253	1.5 1.5	24.64	7.71	2.555	7.50	1.32	-209.6	0.36	1.661	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002C-038.5-20110322 Time Collected: 1253 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

1/4" → 0.0026 x 45 + 0.25 = 0.37 x 3 = 1.1 gal

Monitor _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1606 Time @ End of Purging: 1621 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.7 ft. BTOC Total Well Depth: 40 ft. BLS Reference: BLS Well diameter: 1 in. Volume in well: 0.041 x 40 = 1.6 gal

Screen: 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1606	Start	Begin Purge								clear	
1616	0.5 1.0	24.21	7.62	2.188	6.24	1.12	-177.1	0.18	1.423	"	
1619	1 1.3	24.18	7.56	2.197	6.45	1.12	-180.4	0.25	1.428	"	
1621	1.5 1.5	24.21	7.56	2.202	2.71	1.13	-180.8	0.24	1.431	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-038.5-20110322 Time Collected: 1621 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

0.0026 x 50 + 0.25 = 0.38 x 3 = 1.14 gal

Monitor[illegible] Well Sampling

Site: ie34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): RW000B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst.

Time @ Start of Purging: 1104 Time @ End of Purging: 1121 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 52. ft. (BTOC)

Water Level: 6.12 Ft. BTOC Total Well Depth: 57. Ft. BLS Reference: BLS Well diameter: 6 in. Volume in well: 1.469 x 52 = 76 gal

screen: 47-57 Ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1104	Start	Begin Purge								clear	
1115	0.5 1.0	24.68	7.56	2.395	2.76	1.23	-99.4	1.05	1.557	"	
1119	1 1.4	24.56	7.56	2.397	3.68	1.23	-100.3	1.02	1.558	"	
1121	1.5 1.6	24.50	7.56	2.398	4.07	1.23	-101.7	1.02	1.559	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: ie34-RW000B-052.0-20110322 Time Collected: 1121 Comments: VOC + NBA, VFA, Br & I, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

1/4" → 0.0026 x 67 + 0.25 = ~~0.17 x 5.3~~ = 0.429 = 0.42 x 3 = 1.3 gal

Monitor_ _ Well Sampling

Site: LG34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): BW0001E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1510 Time @ End of Purging: 1525 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 10 ft. BTOC Total Well Depth: 54 ft. BLS Reference: BLS Well diameter: 1 in. Volume in well: 0.041 x 54 = 2.2 gal

Screen: 51-64 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
1510	Start Begin Purge										
1520	0.5 1.0	24.46	7.63	2.385	7.47	1.23	-154.6	0.45	1.551	"	
1523	1 1.3	24.51	7.60	2.385	6.00	1.22	-165.3	0.33	1.551	"	
1525	1.5 1.5	24.53	7.60	2.386	5.71	1.22	-155.2	0.35	1.551	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LG34-BW0001E-052.5-~~20110322~~ 20110322 Time Collected: 1525 Comments: VOC fuBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

1/4" → 0.0026 x 64 + 0.25 = 0.42 x 3 = 1.2 gal

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): IW0002D I Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: ~~1300~~ 1313 Time @ End of Purging: 1330 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 6.9 ft. BTOC Total Well Depth: 55 ft. BLS Reference: BLS Well diameter: 2 in. Volume in well: 0.163 x 55 = 9.0 gal

Screen: 50-55 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1313										muddy-clear	
~~1308~~ 13	Start	Begin Purge									
1323	0.5 1.0	24.76	7.62	2.495	16.9	1.28	-107.6	0.56	1.621	clear	
1326	1 1.2	24.66	7.57	2.493	11.0	1.28	-112.6	0.48	1.621	"	
1330	1.5 1.5	24.60	7.56	2.496	8.33	1.28	-124.1	0.39	1.622	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002DI-052.5-20110322 Time Collected: 1330 Comments: VOC + 4BA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

0.041 x 0.035 x 65 + 0.25 = 0.34 x 3 = 1 cml.

~~QC0001-000.0~~ J.B.

Monitor. _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/22/11 Sampled By: J. Bartlett

Station (Well ID): BW0003E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1537 Time @ End of Purging: 1552 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 11.1 ft. BTOC Total Well Depth: 54 ft BLS Reference: BLS Well diameter: 1 in. Volume in well: 0.041 x 54 = 2.2 gal

screen: 57-54 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1537	Start	Begin Purge								clear	
1547	0.5 1.0	24.41	7.57	2.361	6.94	1.21	-148.9	0.16	1.535	"	
1550	1 1.3	24.35	7.56	2.368	6.54	1.22	-155.9	0.26	1.539	"	
1552	1.5 1.5	24.39	7.56	2.369	5.91	1.22	-158.9	0.25	1.540	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0003E-052.5-20110322

Sample ID: _____ Time Collected: 1552 Comments: VOC + nBA | (Duplicate)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → 0.0026 x 64 + 0.25 = 0.42 x 3 = 1.2 gal

LC34-QC0001-000.0-20110322

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DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: TR0272
Contractors: —

Date: 3/28/11
Task No.: 06

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: O&M

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: Yes
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0630: at office, calibrate YSI, load truck, prepare paper work stopped, got ice from fire station in industrial park on KSC.

0850: on site, JB turn off system, set up for sampling.

sampled wells: RW0007, RW0006, MW0020A, MW0020D.

11:35: called NASA Weather — Phase II for next hour → Lunch

1300: weather is awful — offsite, back to office.

1400: CCV

Plans/Future Activities

03/28/11
Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 ESTCP PEO Project #: TR0272 Field Personnel: J. Barlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 02L001942 Turbidimeter - Model/Serial #: LaMotte 2020 / 2622-1602

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		3/28/11	0648	23.93	8.434	6.66 / 8.43	79.4 / 100.5	P F
CAL ICV CCV		↓	1413	21.36	8.846	8.54	96.3	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		3/28/11	0700	1413	7807	03-2011	1.353 / 1.413	P F
CAL ICV CCV				same	as above		1.463	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		3/28/11	0651	4.0	2002034	01-2012	4.10 / 4.00	P F
CAL ICV CCV		↓	↓	7.0	2002012	01-2012	7.05 / 7.00	P F
CAL ICV CCV			1415	10.0	1002035	07-2011	9.97 / 10.00	P F
CAL ICV CCV				same	as above		4.07	P F
CAL ICV CCV							6.96	P F
CAL ICV CCV							10.03	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		3/28/11	0704	240.25	2244	03/2015	219.5 / 240.0	P F
CAL ICV CCV				same	as above		240.7	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	3/28/11	8.73 / 10.0	P F
CAL ICV (CCV)	↓	11.30	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: Field Personnel: D. Strzemure

Water Quality Meter - Model/Serial #: YSI 556 OSD 2373 Turbidimeter - Model/Serial # Lamotte 2020

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		3/29/11	814	21.4	8.85	8.34-8.89	100.3	P F
CAL ICV CCV		3/29/11	1300	22.0	8.74	8.79	100.5	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
							Acceptance Criteria: +/- 5%	
CAL ICV CCV		3/29/11	829	1.413	7807	3/11	1.372-1.412	P F
CAL ICV CCV		↓	1300	1.413	11	2	1.399	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
							Acceptance Criteria: +/-0.2 SU	
CAL ICV CCV		3/29/11	819	4	200234	9/12	3.93 4.00	P F
CAL ICV CCV		↓	818	7	200202	3/11	7.43-7.00	P F
CAL ICV CCV				10	7002035	7/12	10.46-10.00	P F
CAL ICV CCV			1305	↓	↓	↓	4.10	P F
CAL ICV CCV			↓				7.10	P F
CAL ICV CCV							10.13	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
							Geosyntec Acceptance Criteria: +/- 5%	
CAL ICV CCV		3/29/11	820	240 @25	2244	3/12	247.7-240	P F
CAL ICV CCV		↓	1310	↓	↓	↓	239	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	3/29/11	9.7-10.0	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitor[illegible] Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 03/28/11 Sampled By: J. Bartelt

Station (Well ID): RW0007 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): ~~S.S. YSI~~ Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0910 Time @ End of Purging: 0926 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.22 ft. BTOC Total Well Depth: 42 ft.BLS Reference: BLS Well diameter: 6 in. Volume in well: 61.6 gal

screen 35-42 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0910	Start 0	23.01	7.48	2.190	7.42	1.13	19.0	6.35	1.450	clear	
0920	0.5 1	23.25	7.41	2.572	4.49	1.33	-114.7	2.15	1.672	"	
0924	1 1.4	23.32	7.42	2.585	4.45	1.33	-126.3	1.77	1.681	"	
0926	1.5 1.6	23.24	7.43	2.595	3.71	1.34	-135.3	1.69	1.687	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-0385-20110328 Time Collected: 0926 Comments: VOC+MBA, VFA, Br, I, TOL, Sulfide, MEE, Anions, Alk.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.0026 x 52 + 0.25) x 3 = 1.15 gal

Duplicate: LC34-RC0002-000.0-20110328

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/29/01 Sampled By: ~~J.Bartlett~~ DMS

Station (Well ID): IW0002I Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1152 Time @ End of Purging: 1213 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 27.5 ft. (BTOC)

Water Level: 6.95 ft. BTOC Total Well Depth: 30 ft. BLS Reference: BLS Well diameter: 2 in. Volume in well: 4.9 gal

Screen: 25-30 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1152	Start		~~7.61~~								
1159	0.5	24.79	~~7.91~~ DMS	2.345	6.2	1.10	-50.5	.50	1.29	Clear	
1206	1	24.80	7.62	2.346	5.9	1.12	-52.3	.49	1.30	"	
1213	1.5	24.81	7.63	2.345	4.7	1.13	-52.9	.45	1.31	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002I-027.5-20103 Time Collected: 1213 Comments: VOC + NBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 30 + 0.25) x 3 = 0.92 gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 03/28/11 Sampled By: J. Bartlett

Station (Well ID): IW00021S Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1108 Time @ End of Purging: 1122 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 37.5 ft. (BTOC)

Water Level: 6.84 ft. BTOC Total Well Depth: 40 ft. BLS Reference: BLS Well diameter: 2 in. Volume in well: 6.5 gal

Screen: 35-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1108	Start 0	22.89	7.82	1.168	8.07	0.60	-46.0	3.81	0.837	clear	
1118	0.5 1.0	23.32	7.46	1.871	5.34	0.95	-141.2	0.64	1.216	"	
1120	1 1.2	23.31	7.46	1.888	4.67	0.96	-145.5	0.67	1.228	"	
1122	1.5 1.4	23.31	7.46	1.897	5.49	0.96	-148.8	0.69	1.233	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002D-037.5-20110328 Time Collected: 1122 Comments: VOC + hBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 X 0.035 X 50 + 0.25) X3 = 0.75 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/29 Sampled By: ~~J. Bartlett~~ PMS

Station (Well ID): BW0001C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1053 Time @ End of Purging: 1114 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.12 Total Well Depth: 40 ft. BLS Reference: BLS Well diameter: 3/4 in. Volume in well: 0.8 gal
0.02 x 40 =

screen: 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1053	Start										
1100	0.5	24.62	7.50	2.092	6.5	1.07	-29.8	.80	1.35	Clear	
1107	1	24.62	7.50	2.093	5.4	1.08	-53.6	.62	1.34	"	
1114	1.5	24.63	7.50	2.093	4.9	1.08	-59.0	.49	1.34	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001C-038.5-261103

Sample ID: _____ Time Collected: 1114 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= ___ gal

¼" → (0.0026 x 50 + 0.25) x 3 = 1.14 gal

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/29/11 Sampled By: ~~J Bartell~~ D. Sizemore

Station (Well ID): BW0002C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 930 Time @ End of Purging: 951 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.91 Total Well Depth: 40 ft. BLS Reference: BLS Well diameter: 3/4 in. Volume in well: 0.8 gal

0.02 x 40 =

screen : 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
							DRY				→
0930	Start										
0937	0.5	23.57	7.31	2.484	6.5	1.28	-63.443	.63	1.62	Clear	
0944	1	23.58	7.31	2.489	5.7	1.28	-59.1	.65	1.62	"	
0951	1.5	23.57	7.31	2.490	5.1	1.28	-60.2	.62	1.62	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002C-038.5-201103

Sample ID: _____ Time Collected: 951 Comments: VOC + nBA

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

3/4" → (0.0026 x 50 + 0.25) x3 = 1.14 gal

Monitoring Well Sampling

Site: L34 Project No.: 160272 Task: 06 Date: 3/29/11 Sampled By: ~~J. Bartlett~~ D. Szemore

Station (Well ID): BW00038 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 955 Time @ End of Purging: 1016 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.19 Total Well Depth: 40 ft. BLS Reference: BLS Well diameter: 3/4 in. Volume in well: 0.8 gal

0.02 x 40 =

Screen: 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
955	Start										
1002	0.5	23.62	7.48	2.495	19.4	1.39	-75.1	.55	1.59	Clear	
1009	1	23.59	7.51	2.497	9.3	1.40	-89.2	.49	1.62	"	
1016	1.5	23.60	7.50	2.502	8.9	1.40	-92.3	.42	1.62	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

L34-BW00038-038.5-201103

Sample ID: ___ Time Collected: 1016 Comments: VOC + HBA

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= ___ gal

3/4" → (0.0026 x 50 + 0.25) x 3 = 1.14 gal

Monitoring Well Sampling

Site: LC34 Project No.: 760272 Task: 06 Date: 03/29/11 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1002 Time @ End of Purging: 1019 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 6.30 ft. BTOC Total Well Depth: 57 ft BLS Reference: BLS Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1002	Start 0	22.94	7.78	2.510	13.2	1.29	-61.4	1.76	1.631	clear	
1012	0.5 1.0	23.32	7.59	2.550	5.94	1.32	-125.5	0.70	1.658	"	
1015	1 1.3	23.31	7.58	2.552	4.45	1.32	-130.4	0.55	1.659	"	
1019	1.5 1.7	23.23	7.60	2.556	7.86	1.32	-117.1	0.55	1.659	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20110328 Time Collected: 1019 Comments: VOC+NBSA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= ___ gal

(0.0026 x 67 + 0.25) x 3 = 1.3 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 03/28/11 Sampled By: J. Bartlett

Station (Well ID): IW000201 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1043 Time @ End of Purging: 1057 Total Purging Time: 14 min Depth of Pump or Intake Tubing: ~~8.9~~ 8.8 52.5 ft. (BTOC)

Water Level: 8.01 ft. BTOC Total Well Depth: 55 ft. BLS Reference: BLS Well diameter: 2 in. Volume in well: 8.9 gal

Screen: 50 - 55 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1043	Start 0	23.31	8.36	1.508	18.5	0.80	-31.3	6.66	1.134	clear	
1053	0.5 1.0	23.76	7.59	2.610	10.27	1.35	-101.5	0.45	1.698	"	
1055	1 1.2	23.78	7.59	2.624	8.54	1.36	-107.7	0.41	1.707	"	
1057	1.5 1.4	23.75	7.59	2.632	7.50	1.36	-109.3	0.43	1.711	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW000201-052.5-20110328 Time Collected: 1057 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 60 + 0.25) x 3 = 1.0 gal

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/29/11 Sampled By: ~~J. Bartlett~~ DMS

Station (Well ID): BW00018 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1121 Time @ End of Purging: 1149 Total Purging Time: 28 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 4.79 Total Well Depth: 54 ft. BLS Reference: BLS Well diameter: 3/4 in. Volume in well: 1.08 gal
0.02 x 54 =

Screen: 57-54 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1121	Start										
1128	0.5	25.09	7.63	2.569	21.2	1.29	-57.9	.68	1.54	Clear	
1135	1	25.10	7.64	2.572	9.3	1.33	-63.2	.43	1.59	"	
1142	1.5	25.11	7.64	2.573	9.1	1.34	-64.2	.40	1.60	"	
1149	2	25.11	7.64	2.573	8.7	1.34	-65.0	.41	1.61	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34 - BW00018 - 052.5 - 201103
Sample ID: _____ Time Collected: 1149 Comments: VOC + 4BA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 x 54 + 0.25) x 3 = 1.2 gal

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: 06 Date: 3/29/11 Sampled By: ~~J. Bartlett~~ DMS

Station (Well ID): BW00036 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geotech Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1021 Time @ End of Purging: 1049 Total Purging Time: 28 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 4.79 Total Well Depth: 54 ft. BLS Reference: BLS Well diameter: 3/4 in. Volume in well: 1.08 gal
0.02 x 54 =

screen: 51-54 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1021	Start										
1028	0.5	24.06	7.64	2.122	12.5	1.08	-72.04	.58	1.38	Clear	
1035	1	23.99	7.65	2.123	5.8	1.10	-92.3	.89	1.40	"	
1042	1.5	24.00	7.70	2.124	6.2	1.11	-93.2	.80	1.40	"	
1049	2	24.01	7.71	2.124	6.6	1.12	-94.0	.65	1.41	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00036-052.5-201103 Time Collected: 1049 Comments: VOC + HBA

When using 3/4"6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

3/4" → (0.0026 x 64 + 0.25) x 3 = 1.2 gal

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: TR0272
Contractors: —

Date: 04/07/11
Task No.: 35

Work Performed

Well Installation: ____
Soil Borings: ____
DPT: ____
Well Inventory: ____
Other: ✓ O&M

Sampling Soil: ____
Sampling SW/Sediment: ____
Sampling Monitor Wells: ✓
Sampling Hazardous Waste: ____
Sampling Drums: ____

Observations/Issues of Concern

0730: at office, calibrate YSI / turbidimeter, load truck
0900: at site, begin sampling
- refer to Monitoring Well Sampling Forms for details
sampled Effluent: LC34-EF0003-000.0-20110407 @ 1205 (RW00078)
LC34-EF0004-000.0-20110407 @ 1205 (RW00088)

1440: complete sampling → O&M

PPE in drum 183859 ~60% full
pallet 183397

1530: off site.

Plans/Future Activities

Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 02L0019AE Turbidimeter - Model/Serial # HACH 2100Q / 10110C006392

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		04/07/11	0733	21.33	8.863	9.63/9.86	108.7/99.9	P F
CAL ICV CCV		↓	1450	20.50	7.49	7.49/7.49	100.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		04/07/11	0744	1.413	070813	06-2011	1.382/1.413	P F
CAL ICV CCV		↓	1701	same	on above		1.463	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		04/07/11	0735	4.0	2002034	01-2012	4.04/4.00	P F
CAL ICV CCV		↓	↓	7.0	2002012	01-2012	6.82/7.0	P F
CAL ICV CCV				10.0	1002035	07-2011	10.29/10.0	P F
CAL ICV CCV			0853				4.17	P F
CAL ICV CCV				same	on above		8.99	P F
CAL ICV CCV			↓				9.96	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		04/07/11	0750	240 @ 25	2244	03-2015	240.3/240.0	P F
CAL ICV CCV		↓	1705	same	on above		230.5	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	04/07/11	20.3	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	04/07/11	102	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV	04/07/11	791	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 40 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV	04/07/11	973	P F
CAL ICV CCV	↓	953	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 0938 Time @ End of Purging: 0953 Total Purging Time: 15 min. Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.33 ft. BTOC Total Well Depth: 42 ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: N/A

Screen: 35-42 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0938	Start 0	24.27	7.78	2.077	2.87	1.06	-69.8	1.24	1.365	clear	
0948	0.5 1.0	24.20	7.58	2.335	1.06	1.20	-156.7	0.34	1.518	"	
0951	1 1.3	24.31	7.57	2.336	1.15	1.20	-159.1	0.37	1.519	"	
0953	1.5 1.5	24.23	7.57	2.345	0.79	1.20	-153.8	0.38	1.524	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20110407 Time Collected: 0953 Comments: VOC plus nBA, VFA, Br & I, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 × (-2+0.25)) × 3 = 1.2 gal

Monitor.. Well Sampling

Site: LC 34 Project No.: TR 0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): LW 0002 I Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 11 11 Time @ End of Purging: 1127 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 27.5 ft. (BTOC)

Water Level: 5.54 ft. BTOC Total Well Depth: 30 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: NA

Screen : 25-30 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1111	Start 0	24.18	7.82	0.746	10.9	0.36	-143.5	1.44	0.490	clear	
1121	0.5 1.0	24.39	7.77	0.833	12.2	0.41	-140.7	0.42	0.541	"	
1123	1 1.2	24.61	7.37	0.840	9.37	0.41	-131.0	0.39	0.547	"	
1125	1.5 1.3	24.63	7.39	0.848	6.11	0.42	-129.2	0.38	0.552	"	
1127	2 1.5	24.53	7.40	0.851	6.06	0.42	-137.9	0.35	0.554		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

38- ~~LC34 - IW0002I - 20110407~~ LC34-IW0002I-0275-20110407

Sample ID: _____ Time Collected: 1127 Comments: VOC plus nBA,

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041x0.035x40+0.25) x3= 0.9 gal

Monitoring Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): IW0002D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1038 Time @ End of Purging: 1052 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 37.5 ft. (BTOC)

Water Level: 5.97 ft. BTOC Total Well Depth: 40 ft. BTOC Reference: TOC Well diameter: 2 in. Volume in well: ___

Screen: 35-40 ft. BTOC

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1038	Start 0	23.89	7.25	1.440	2.47	0.73	-107.0	2.36	0.971	clear	
1048	0.5 1.0	24.50	7.56	1.785	1.75	0.90	-147.2	0.39	1.161	"	
1050	1 1.2	24.59	7.60	1.798	1.50	0.91	-151.9	0.30	1.170	"	
1052	1.5 1.4	24.58	7.58	1.814	1.67	0.92	-152.9	0.27	1.180	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002D-0375-20110407 Time Collected: 1052 Comments: VOC plus nBA, JB

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 50 + 0.25) x 3 = 1.0 gal

Duplicate: ~~LC34-20110407-FD-01~~ LC34-FD-20110407-01

Monitor.. Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): BW0001C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1257 Time @ End of Purging: 1312 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 8.75 Ft. BTOC Total Well Depth: 40 Ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

Screen: 37-40 Ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1257	Start 0	28.06	8.13	2.321	130	1.17	-135.6	6.99	1.432	cloudy	
1307	0.5 1.0	25.18	7.51	2.455	5.04	1.25	-143.0	0.26	1.585	clear	
1309	1 1.2	25.22	7.48	2.461	3.09	1.26	-142.5	0.16	1.600	"	
1312	1.5 1.5	25.28	7.47	2.472	2.29	1.27	-140.7	0.17	1.608	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001C-038.5-20110407 Time Collected: 1312 Comments: VOC plus nBA,

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

1/4" → (0.0026 x 50 + 0.25) x3 = 1.1 gal

Monitor[illegible] Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): BW0002C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Dunham

Time @ Start of Purging: 1137 Time @ End of Purging: 1152 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 7.61 ft. BTOC Total Well Depth: 40 ft-BLS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

Screen: 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1137	Start 0	24.55	7.69	1.775	44.3	0.91	-103.3	3.15	1.216	cloudy	
1147	0.5 1.0	24.74	7.72	2.434	19.6	1.25	-155.3	0.30	1.584	"	
1149	1 1.2	24.75	7.74	2.456	15.3	1.26	-158.2	0.29	1.598	clear	
1152	1.5 1.5	24.76	7.75	2.484	11.6	1.28	-149.3	0.25	1.616	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002C-038.5-20110407 Time Collected: 1152 Comments: VOC plus nBA,

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 × 50 + 0.25) × 3 = 1.1 gal

Monitor_ Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1349 Time @ End of Purging: 1404 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.62 ft. BTOC Total Well Depth: 40 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

Screen: 37-40 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1349	Start 0	24.88	7.92	1.647	12.8	0.84	-113.1	4.09	1.097	clear	
1359	0.5 1.0	24.71	7.69	2.127	5.94	1.09	-158.5	0.10	1.383	"	
1402	1 1.3	24.71	7.70	2.145	4.33	1.09	-167.0	0.10	1.395	"	
1404	1.5 1.5	24.71	7.70	2.156	2.80	1.10	-168.2	0.12	1.401	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-0385-20110407 Time Collected: 1404 Comments: VOC plus nBA,

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 x 50 + 0.25) x 3 = 1.1 gal

Monitor.. Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 0900 Time @ End of Purging: 0916 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 12.24 ft BTOC Total Well Depth: 57 ft BLS Reference: TOC Well diameter: 6 in. Volume in well: NA

Screen: 47 - 57 ft BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0900	Start 0	23.83	7.39	2.411	2.11	1.24	183.2	2.68	1.571	clear	
0910	0.5 1.0	23.98	7.68	2.456	1.37	1.26	-92.4	0.56	1.597	"	
0913	1 1.25	24.05	7.68	2.458	0.79	1.26	-102.5	0.57	1.598	"	
0916	1.5 1.5	24.15	7.68	2.464	0.78	1.27	-113.4	0.61	1.603	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20110407 Time Collected: 0916 Comments: VOC plus nBA, VFA, Br & I, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 × 67 + 0.25) × 3 = 1.3 gal

Monitor.. Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Barthett

Station (Well ID): MW000201 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1014 Time @ End of Purging: 1029 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 6.25 ft. BTOC Total Well Depth: 55 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: NA

Screen: ~~25-30~~ 50-55 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1014	Start 0	23.91	8.32	1.400	8.82	0.76	-81.4	3.62	1.127	clear	
1024	0.5 1.0	24.06	7.68	2.591	8.77	1.34	-109.9	0.30	1.685	"	
1026	1 1.2	24.09	7.68	2.592	6.13	1.34	-119.1	0.30	1.685	"	
1029	1.5 1.5	24.13	7.68	2.594	5.17	1.34	-127.3	0.29	1.687	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-MW000201-20110407 Time Collected: 1029 Comments: VOC plus nBA,

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 65 + 0.25) x3 = 1.0 gal

Monitoring Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): BW00018 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: ~~10.9~~ 1320 Time @ End of Purging: 1336 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 10.94 ft. BTOC Total Well Depth: 54 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

Screen: 51-54 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1320	Start 0	24.74	7.77	2.389	42.2	1.23	-135.8	3.42	1.557	cloudy	
1330	0.5 1.0	24.88	7.70	2.501	8.35	1.29	-145.7	0.34	1.625	clear	
1333	1 1.3	24.92	7.71	2.505	5.26	1.29	-145.3	0.27	1.629	"	
1336	1.5 1.6	24.76	7.71	2.505	5.06	1.29	-138.7	0.15	1.628	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00018-0525-20110407 Time Collected: 1336 Comments: VOC plus nBA,

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 x 64 + 0.25) x3 = 1.3 gal

Monitoring Well Sampling

Site: LC 34 Project No.: TR0272 Task: 35 Date: 04/07/11 Sampled By: J. Bartlett

Station (Well ID): BW00038 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1413 Time @ End of Purging: 1429 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 13.11 ft. BTOC Total Well Depth: 54 ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

Screen: 51-54 ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1413	Start 0	25.78	7.80	2.455	118	1.26	-91.1	4.86	1.598	cloudy	
1423	0.5 1.0	24.96	7.75	2.477	13.4	1.27	-137.1	0.19	1.610	clear	
1426	1 1.3	25.03	7.74	2.481	7.24	1.28	-135.3	0.17	1.613	"	
1429	1.5 1.6	25.03	7.74	2.481	9.85	1.28	-136.9	0.17	1.612	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00038-0525-20110407 Time Collected: 1429 Comments: VOC plus nBA,

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 x 64 +0.25) x3 = 1.3 gal

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DAILY FIELD REPORT

Page 1 of 1

Project: ESPLP LC34 R&D
Project No.: IR0272
Contractors: —

Date: 4/18/11
Task No.: 35

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: X
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0700: mtg at office (JKB, Eng)
- calibrated YSI, turbidometer
- loaded truck.
- left to site

0900: on site, perform O&M, begin sampling
Refer to Sampling forms for details

Effluent Samples: RW-7 : LC34-EF0005-000.0-20110418
RW-8 : LC34-EF0006-000.0-20110418

@ 1525

IDW-D drum ID: ~~183860~~ 183860
Pallet ID: 183397

Plans/Future Activities

4/18/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: ~~Floyd~~ ESTCP FED UCH
Project No.: TR0272
Contractors: —

Date: 9/19/11
Task No.: 35

Work Performed

Well Installation: _____
Soil Borings: _____
DPT: _____
Well Inventory: _____
Other: _____

Sampling Soil: _____
Sampling SW/Sediment: _____
Sampling Monitor Wells: X
Sampling Hazardous Waste: _____
Sampling Drums: _____

Observations/Issues of Concern

0700: - JWB and JRB met at office.
- calibrate YSI, turbidimeter
- load truck
- leave for site.

0830: begin sampling — for details refer to sampling field forms.

0330: off site.
- pack samples for shipping
- CCV YSI & turbidimeter

1600: end of day

Plans/Future Activities

- Install Hour Meters
- Level Loggers

Signature/Date 9/19/11

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D2373 AK Turbidimeter - Model/Serial #: HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		4/18/11	0731	23.82	8.450	7.14 / 8.45	84.3 / 99.8	P F
CAL ICV CCV		4/19/11	0719	23.12	8.562	9.53 / 8.47	110.9 / 98.8	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		4/18/11	0743	1.413	0061813	06-2011	1.412 / 1.413	P F
CAL ICV CCV		4/19/11	0739	↓	↓	↓	1.327 / 1.413	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		4/18/11	0734	4.0	2002034	01-2012	4.59 / 4.00	P F
CAL ICV CCV		↓	↓	7.0	2002012	01-2012	6.89 / 7.00	P F
CAL ICV CCV				10.0	1002035	07-2011	10.07 / 10.00	P F
CAL ICV CCV		4/19/11	0729	↓	↓	↓	4.39 / 4.00	P F
CAL ICV CCV		↓	↓				7.20 / 7.0	P F
CAL ICV CCV							9.69 / 10.00	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		4/18/11	0748	240 @ 25	2244	03-2015	228.7 / 240.0	P F
CAL ICV CCV		4/19/11	0732	240 @ 25	↓	↓	243.9 / 240.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	4/18/11	10.6	P F
CAL ICV CCV	4/19/11	10.5	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	4/18/11	16.11	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV	4/18/11	98.3	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV	4/18/11	794/10.1	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LL39 Project #: TR0272 Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D2373 AL Turbidimeter - Model/Serial #: HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
					Acceptance Criteria: +/-0.3mg/L			
CAL ICV (CCV)		4/19/11	1755	21.4	8.846 ~~8.545~~ JB2	9.13	106.4	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV (CCV)		4/19/11	1752	1.413	006813	06-2011	1.436	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV (CCV)		4/19/11	1750	4.0	2002034	01-2012	4.19	P F
CAL ICV (CCV)		↓		7.0	2002012	01-2012	6.82	P F
CAL ICV (CCV)				10.0	1002035	07-2011	9.82	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV (CCV)		4/19/11		240 @ 25	2244	03-2015	232.2	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV (CCV)	4/19/11	8.60	P (F)
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: Emily Guyer / Jan Barfus

Water Quality Meter - Model/Serial #: YSI 556MPS / 09D101399 Turbidimeter - Model/Serial # Hach 2100Q 10110C006392

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		4.18.11	0745	22.8	8.611	98.8→100	8.58→8.61	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		4.18.11	0745	1.413	8464	11-2011	1.550→1.411	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		4.18.11	0745	4	2007412	07-2012	3.91→4.00	P F
CAL ICV CCV		4.18.11	0745	7	1009524	09-2012	7.01→7.00	P F
CAL ICV CCV		4.18.11	0745	10	1007193	12-2011	10.04→10.00	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		4.18.11	0745	240mV @25C	2981	01-2016	250→240	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV		20.2→20	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Lot A1052 Exp Feb-12

11 - 40 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV		95.6→100	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Lot 0295 Oct-11

41 - 100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV		804→800	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Lot A1050 Exp Feb12

>100 NTU Std ____ NTU	Date	Reading (NTU)	Pass or Fail
10 verify		Acceptance Criteria: +/- 5%	
CAL ICV CCV		9.49 pass	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Lot A1050 ~~EF~~ Exp Feb-12

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: FØØ552 Field Personnel: Jan Barfus

Water Quality Meter - Model/Serial #: YSI 556/09D101399 Turbidimeter - Model/Serial #: Hach 2100Q/1122662

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		4/19/11	0745	21.90	8.761	9.35→8.76	106.7→100.0	(P) F
CAL ICV CCV				25.77	5.108	5.20	100.2	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) (CCV)		4/19/11	0735	1.413	006181B	06/30/14	1.642→1.413	(P) F
CAL ICV (CCV)		11	1735	11	11	11	1.430	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		4/19/11	0730	4.0	2002034	01-2012	3.93→3.98	(P) F
(CAL) (ICV) CCV		4/19/11	11	7.0	2002012	Jan 2012	7.15→7.00	(P) F
(CAL) (ICV) CCV		4/19/11	11	10.0	1002035	07-2011	9.94→10.00	(P) F
CAL ICV (CCV)		11	1730	4.0		Same	3.86	(P) F
CAL ICV (CCV)		11	1730	7.0		as	6.99	(P) F
CAL ICV (CCV)		11	1730	10.0		above	9.96	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		4/19/11	0740	240@25°C	2244	03-2015	247.1→240.0	(P) F
CAL ICV (CCV)		11	1740	11	11	11	230.9	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 10%		
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 8%		
(CAL) (ICV) CCV	4/19/11	9.47	(P) F
CAL (CCV)	11	9.96	P (F)
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 6.5%		
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 5%		
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: J. Bartleff

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0858 Time @ End of Purging: 0917 Total Purging Time: 19 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 3.68 ft. BTOC Total Well Depth: 42 ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: 61 gal

Screen: 35-42 ft BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
0858	Start 0	begin purge									
0903	0.5	24.65	7.41	1.859	1.74	0.94	-140.3	0.81	1.211	"	
0908	1	24.61	7.42	1.893	1.62	0.96	-157.9	0.52	1.231	"	
0913	1.5	24.67	7.42	1.898	1.35	0.96	-165.5	0.46	1.233	"	
0915	2 1.7	24.73	7.42	1.899	1.49	0.96	-167.1	0.43	1.235	"	
0917	2.5 1.9	24.72	7.42	1.901	1.35	0.96	-165.5	0.41	1.236	"	
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0007-035.5-20110419 Time Collected: 0917 Comments: VOC+nBA(D), VFA(D), Br$^-$, I$^-$(D), TOC(D), Sulfide(D), NH$_3$(D), Anions(D), Alk(D),

in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal Dissolved Metals(D), Dis. Hg(D), DOC(D),

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: Emily Guyer ers

Station (Well ID): IW0002I Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1450 Time @ End of Purging: 1510 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 27.5 ft. (BTOC)

Water Level: 5.85 Total Well Depth: 30 Reference: TOC Well diameter: 2 in. Volume in well: 4.89 ~~5.0~~ gal

Screen: 25-30

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1450	Start	←			began purge	←					
1455	0.5	24.38	7.44	0.730	6.38	0.36	-143.7	0.27	0.475	clear	
1500	1	24.41	7.48	0.730	6.42	0.36	-142.4	0.25	0.475	↓	
1505	1.5	24.42	7.45	0.731	5.64	0.36	-142.4	0.29	0.475		
1510	2	24.42	7.44	0.732	5.10	0.36	-140.5	0.29	0.476		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002I-0275-20110418 Time Collected: 1510 Comments: VOC/VFA/TOC/Sulfide/MEE/Soluble Metals/Bromide/I-/Anions/Alkalinity

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+~~0.5~~(flow tru vol)= 0.3~~0~~gal

35 0.25

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 18 | 11 Sampled By: J. Bartlett

Station (Well ID): IW00020 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Silnst

Time @ Start of Purging: 1443 Time @ End of Purging: 1457 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 37.5 ft. (BTOC)

Water Level: 6.25 Ft. BTOC Total Well Depth: 40 Ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 0.5 gal.

Screen: 35-40 Ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
1443	Start 0	Begin Purge									
1453	0.5 1.0	25.95	7.81	1.229	5.54	0.61	-157.5	0.61	0.799	"	
1455	1 1.2	25.83	7.81	1.235	3.72	0.61	-159.3	0.44	0.803	"	
1457	1.5 1.4	25.89	7.80	1.239	3.77	0.61	-161.5	0.36	0.806	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW00020-0375-20110418 Time Collected: 1457 Comments: VOC +MBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk, Dissolved Mtls.

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal (0.041 x [illegible] x 37.5 x 0.035 + 0.25) x 3 = 1.0 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 18 | 11 Sampled By: Emily Geiger emg

Station (Well ID): BW0001A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1000 Time @ End of Purging: 1020 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 24.5 ft. (BTOC)

Water Level: 5.21 Total Well Depth: 24.5 Reference: TOC Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen: 23-26

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
				began purge/clear							
1000	Start										
1005	0.5	24.31	7.41	0.772	1.28	0.38	-154.6	0.33	0.508	clear	
1010	1	24.24	7.41	0.782	1.12	0.38	-155.1	0.31	0.509	↓	
1015	1.5	24.23	7.42	0.783	1.63	0.38	-155.5	0.30	0.509		
1020	2	24.23	7.43	0.783	1.86	0.38	-155.6	0.38	0.509		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001A-24.5-20110418 Time Collected: 1020 Comments: VOC | VFA | MEE | TDC | Sulfide | Br, I | Soluble Metals | Anions | Alk

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+~~0.5(flow thru vol)~~=0.29 gal

30 0.25

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 18 | 11 Sampled By: Emily Guyer

Station (Well ID): BW0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1020 Time @ End of Purging: 1040 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.32 Total Well Depth: 31.5 Reference: TOC Well diameter: 3/4 in. Volume in well: 0.66 gal

Screen: 30-33

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1020	Began Purge - clear						-160.3				
1025	Start	24.87	7.55	~~1.379~~	1.74	0.69	~~-159.4~~	0.26	0.900	clear	
1030	0.5	24.84	7.55	1.388	2.67	0.69	-160.0	0.25	0.902	↓	
1035	1	24.81	7.55	1.390	1.92	0.69	-159.4	0.24	0.904	↓	
1040	1.5	24.84	7.55	1.391	2.30	0.70	-159.0	0.24	0.905		
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002B-031.5-20110418 Time Collected: 1040 Comments: VOC | VFA | MEE | TOC | Sulfide | Soluble Metals | Br & I | Anions/Alk

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+~~0.5(flow thru vol)~~ 0.30 gal

35 0.25

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: Emily Guyer

Station (Well ID): ~~MW~~BW0001C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1100 Time @ End of Purging: 1120 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.75 Total Well Depth: 40 Reference: TOC Well diameter: 3/4 in. Volume in well: 0.8 gal

Screen: 37-40

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1100	Start			began purge							
1105	0.5	25.22	7.56	1.552	15.2	0.78	-152.1	1.26	1.613	clear	
1110	1	24.85	7.46	1.909	12.9	0.97	-147.9	0.66	1.220	↓	
1115	1.5	24.81	7.44	2.054	11.8	~~0.58~~ 1.05	-146.8	0.57	1.339	↓	
1120	2	24.90	7.43	2.062	11.8	1.05	-145.7	0.54	1.346		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001C - 0385-

Sample ID: 20110418 Time Collected: 1120 Comments: VOC/VFA/MEE/TOC/Anion/Soluble Metals/Sulfide/Br/I/ Alk/DHC/VC&A

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow thru vol)=~~.052~~ gal

45 0.25 0.31

Monitor... Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: Emily Geiger

Station (Well ID): BW0001D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1340 Time @ End of Purging: 1400 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 6.43 Total Well Depth: 47 Reference: TOC Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen: 44-47

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469) 3/4" = 0.02 gal/ft

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
					began purge		clear				
1340	Start										
1345	0.5	25.57	7.38	2.749	6.63	1.42	-125.1	0.40	~~1.785~~	clear	
1350	1	25.65	7.37	2.748	~~6~~ 4.51	1.42	-124.3	0.33	1.787		
1355	1.5	25.63	7.37	2.751	3.61	1.42	-123.3	0.32	1.789		
~~1400~~ 1400	2	25.60	7.37	2.754	3.91	1.42	-122.5	0.32	1.791		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001D-045.5-

Sample ID: 20110418 Time Collected: 1400 Comments: VOC/VFA/TDC/Sulfide/MEE/Soluble Metals/ BTEX/Anions/Alk

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+~~0.5~~(flow thru vol)=~~0.32~~ gal (50) (0.25)

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: Jan Barfus

Station (Well ID): BW002A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 0900 Time @ End of Purging: ~~0910~~ 0915 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 24.5 ft. (BTOC)

Water Level: 5.57 ft. BTOC Total Well Depth: 26 Reference: TOC Well diameter: ~~3/8~~ 3/4 in. Volume in well: NA

Screen: 23-26

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0900	Start	24.48	7.45	0.628	87.2	0.30	-151.8	0.77	0.409	cloudy	
0905	0.5	24.48	7.48	0.661	12.0	0.32	-173.3	0.19	0.430	clear	
0910	1	24.53	7.48	0.664	10.5	0.32	-173.9	0.22	0.432	"	
0915	1.5	24.52	7.49	0.665	8.38	0.32	-174.5	0.20	0.433	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW002A-24.5-~~20110419~~ 20110419 Time Collected: 0915 Comments: VOC VFA Bromide TOC, mEE

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

LC34-FD-20110419-01

Vol= 0.035 x 24.5 + 0.5 = 0.34 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: Jan Barfus

Station (Well ID): BW0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1005 Time @ End of Purging: 1020 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.72 ft. BTOC Total Well Depth: 33 ft. BLS Reference: TOC Well diameter: ~~2~~ 3/4 in. Volume in well: NM

Screen: 30-33

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1005	Start	25.02	7.59	0.801	30.2	0.39	-181.4	1.33	0.521	clear	
1010	0.5	24.96	7.57	0.842	5.26	0.41	-196.2	0.32	0.556	"	
1015	1	24.94	7.58	0.879	4.12	0.43	-185.8	0.25	0.576	"	
1020	1.5	24.95	7.50	0.902	5.82	0.44	-185.9	0.20	0.588	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34 - BW0002B - 031.5 - 20110419

Sample ID: _____ Time Collected: 1020 Comments: VOC, VFA, Bromide, TOC, MEE

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

V_well = 0.0026 x 43 to 25 = 0.36 gal

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: J. Barton

Station (Well ID): BWC002C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1050 Time @ End of Purging: 1105 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.60 ft. BTOC Total Well Depth: 40 ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

Screen: 37-40

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1050	Start	25.17	7.61	1.968	16.9	1.00	-161.2	0.81	1.284	clear	
1055	0.5	25.20	7.65	2.073	5.05	1.06	-184.5	0.12	1.351	"	
1100	1	25.25	7.59	2.098	7.21	1.07	-201.5	0.11	1.363	"	
1105	1.5	25.24	7.60	2.094	5.34	1.07	-203.0	0.22	1.365	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34 - BWC002C - 038.5 - 20110419 Time Collected: 1105 Comments: VOCs, VFAs, Bromide, TOC, sulfide, ~~MEE~~, Anions, Alkalinity

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

16.9 - 5.34 = 11.56 x 50 = 578 + 0.25 = 0.38 gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: Jan Barfus

Station (Well ID): BW002D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1240 Time @ End of Purging: 1305 Total Purging Time: 25 min Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 9.63 ft. BTOC Total Well Depth: 47 Screen: 44-47 Reference: TOC Well diameter: 1 3/4 in. Volume in well: N/A

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1240	Start	25.16	7.90	2.010	91.7	1.02	-197.6	0.86	1.307	cloudy	
1245	0.5	25.04	7.73	1.997	21.3	1.01	-220.5	0.27	1.298	clear	
1250	1	25.09	7.69	2.043	6.06	1.04	-216.8	0.16	1.328	"	
1306	1.5	25.08	7.64	2.044	2.82	1.04	-211.6	0.15	1.329	"	
1305	2	25.10	7.68	2.045	2.63	1.04	-210.9	0.14	1.329	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW002D-0455-20110419 Time Collected: 1305 Comments: VOCs, VFAs, Br/I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal FD-20110419-09 (VFA), FD-20110419-10(VOC), FD-20110419-04 (TOC)

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: J. Bartlett

Station (Well ID): BW0003A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1122 Time @ End of Purging: 1136 Total Purging Time: 14 min. Depth of Pump or Intake Tubing: 24.5 ft. (BTOC)

Water Level: ~~5.21~~ 5.69 ft. BTOC Total Well Depth: 26 ft-BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.5 gal

Screen: 23-26 ft-BGS 3/4 → 0.02 x 26 =

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
1122	Start 0	begin purge									
1132	0.5 1.0	24.34	7.45	0.722	1.00	0.35	-182.6	1.39	0.469	"	
1134	1 1.2	24.47	7.44	0.723	0.38	0.35	-181.4	1.33	0.470	"	
1136	1.5 1.4	24.44	7.43	0.723	0.52	0.35	-180.1	1.16	0.470	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003A-024.5-20110419 Time Collected: 1136 Comments: VOC 8260, VFA, Bn.Fe, TOC, MEE

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

Duplicate: TOC (12)

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 / 19 / 11 Sampled By: J. Bartlett

Station (Well ID): BW0003B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst.

Time @ Start of Purging: 1309 Time @ End of Purging: 1323 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 4.29 ft. BTOC Total Well Depth: 33 ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.7 x 1.

3/4" → 0.02 x 33 =

Screen: 30-33 ft. BGS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
1309	Start 0	begin purge									
1319	0.5 1.0	24.64	7.52	0.811	6.14	0.40	-161.8	1.17	0.527	"	
1321	1 1.2	24.65	7.46	0.821	4.57	0.40	-177.4	0.37	0.533	"	
1323	1.5 1.4	24.50	7.48	0.815	3.76	0.40	-175.7	0.34	0.529	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0003B-031.5-20110419

Sample ID: _____ Time Collected: 1323 Comments: VOA+nBA, VFA, Br & I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal (D)

(0.041 x 33 + 0.25) x 3 = 1.0 gal

Monitor... Well Sampling

Site: L034 Project No.: TR0272 Task: 35 Date: 4 | 19 | 11 Sampled By: J. Bartlett

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1429 Time @ End of Purging: 1443 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.45 ft. BTOC Total Well Depth: 40 ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.8 gal

Screen: 37-40 ft. BGS 3/4" → 0.02 x 40 =

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										cloudy	
1429	Start 0	begin purge								clear	
1439	0.5 1.0	24.78	7.58	1.594	14.1	0.80	-160.9	0.22	1.037	"	
1441	1 1.2	24.79	7.57	1.599	9.11	0.80	-170.8	0.19	1.040	"	
1443	1.5 1.4	24.79	7.56	1.604	6.12	0.81	-176.5	0.19	1.043	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

L034-BW0003C-038.5-20110419

Sample ID: _____ Time Collected: 1443 Comments: VOC+nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk, DIC, VCA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

¼" → (0.0026 x 50 + 0.25) x 3 = 1.1 gal

Duplicate = MEG (11)

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 19 | 11 Sampled By: J. Bartlett

Station (Well ID): BW0003D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1231 Time @ End of Purging: 1245 Total Purging Time: 14 mins Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 4.21 ft. BTOC Total Well Depth: 47 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.0 gal

3/4" → 0.02647 =

Screen: 44 - 47 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										cloudy ~~clear~~	
1231	Start 0	Begin purge									
1241	0.5 1.0	24.79	7.51	1.856	19.8	0.94	-171.5	0.37	1.207	clear	
1243	1 1.2	24.80	7.51	1.858	14.3	0.94	-174.1	0.33	1.208	"	
1245	1.5 1.4	24.84	7.51	1.859	11.1	0.94	-179.2	0.31	1.208	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003D-0455-20110919 Time Collected: 1245 Comments: VOC+TMBA, VFA, Br & I, TOC, MEG (D)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

1" → (0.0026x57 to 25) x3 = 1.2 gal

Field Duplicate - Sulfide (5), Anions (6), Alk (7), Metals (8)

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: J. Bartlett

Station (Well ID): RWeoc8 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1008 Time @ End of Purging: 1027 Total Purging Time: 19 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 5.72 ft. BTOC Total Well Depth: 57 ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: 83 gal

Screen: 47-57 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
1008	Start 0	begin purge									
1018	0.5 1.0	25.21	7.71	1.926	2.09	0.98	-148.9	2.52	1.252	"	
~~1025~~ 1023	1 1.5	25.26	7.68	1.929	2.18	0.98	-155.3	0.61	1.253	"	
1025	1.5 1.7	25.21	7.68	1.928	2.66	0.98	-156.5	0.44	1.254	"	
1027	2 1.9	25.19	7.68	1.930	1.88	0.98	-155.9	0.40	1.254	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20110419 Time Collected: 1027 Comments: VOCs (D), nBA, VFA, Br & F, TOC, Sulfide, MEE, Anion, Alk, Dissolved Metals, DHG, WCHA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 18 | 11 Sampled By: J. Bartlett

Station (Well ID): IW000201 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1517 Time @ End of Purging: ___ Total Purging Time: ___ Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 6.32 ft. BTOC Total Well Depth: 55 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 9 gal.

Screen: 50-55 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
1517	Start	began purge									
1520	0.5	25.22	7.83	1.954	9.00	0.99	-117.5	0.47	1.272		
1525	1	25.21	7.83	1.958	8.41	0.99	-117.9	0.44	1.275		
1530	1.5	25.16	7.83	1.963	6.92	0.99	-118.5	0.40	1.277		
1535	2	25.16	7.83	1.967	6.79	1.00	-118.7	0.39	1.279		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW000201-052.5-20110418 Time Collected: 1535 Comments: VOC+nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

Monitor[illegible] Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: Emily Guyer

Station (Well ID): BW0001E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1200 Time @ End of Purging: 1220 Total Purging Time: 20min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 5.68 Total Well Depth: 54 Reference: TOC Well diameter: 3/4 in. Volume in well: 1.08 gal

Screen: 51-54

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
					began purge						
1200	Start										
1205	0.5	24.76	7.69	2.370	21.7	1.22	-153.7	0.33	1.540	clear	
1210	1	24.78	7.69	2.371	15.4	1.22	-153.7	0.35	1.541	"	
1215	1.5	24.77	7.69	2.371	11.6	1.22	-153.7	0.37	1.542	"	
1220	2	24.74	7.69	2.372	12.0	1.22	-153.6	0.33	1.541		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001E-052.5-20110418 Time Collected: 1220 Comments: DHC/VCCA/VOCs/VFAs/MEE/TOC/Sulfide/Br & I Soluble Metals/Anions/Alk

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+~~0.5(flow thru vol)~~=0.34 gal 60 0.25

Monitor.. Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: Emily Guyer ems

Station (Well ID): BW0001F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1130 Time @ End of Purging: 1150 Total Purging Time: 20 min Depth of Pump or Intake Tubing: ~~59.5~~ 59.5 ft. (BTOC)

Water Level: 5.66 Total Well Depth: 61 Reference: TOC Well diameter: 3/4 in. Volume in well: 1.22 gal

Screen: 58-61

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1130	Start	→ began purge			— clear	—					
1135	0.5	25.08	7.73	2.280	23.8	~~1.17~~	-123.7	1.11	1.499	clear	
1140	1	24.89	7.66	2.474	4.91	~~1.27~~	-120.3	0.54	1.607	↓	
1145	1.5	24.95	7.66	2.471	3.89	1.27	-119.9	0.51	1.606	↓	
1150	2	24.96	7.65	2.471	3.86	1.27	-119.4	0.49	1.607		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001F-059.5-20110418 Time Collected: 1150 Comments: VOC/VFA/MEE/TOC/Br⁻/I⁻/Sulfide/Anions/Soluble Metals/Alkalinity

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+~~0.5(flow thru vol)~~=0.34 gal

61 0.25

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: J. Barfuss

Station (Well ID): BW0022E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1335 Time @ End of Purging: 1350 Total Purging Time: 15 min Depth of Pump or Intake Tubing: ~~45~~ 48 ~~45.5~~ 53.5 ft. (BTOC)

Water Level: 6.11 Ft. Total Well Depth: ~~47~~ 54 Ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

BTOC Screen: ~~44-47~~ 48-54 54 Ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1335	Start	25.33	7.75	2.038	187	1.04	-235.4	0.59	1.329	cloudy	
1340	0.5	25.35	7.65	2.063	184	1.05	-201.4	0.14	1.342	clear	
1345	1	25.34	7.67	2.063	187	1.05	-193.1	0.10	1.341	"	
1350	1.5	25.31	7.66	2.064	187	1.05	-186.7	0.08	1.341	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0022-~~0415.5~~ 0553.5 20110419 Time Collected: 1350 Comments: VOCs, VFAs, Br/I, TOC, MEES

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

$V_{tube} = 0.0026 \times 57 + 0.252 = 0.40$ gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: J. Barton

Station (Well ID): BW0002F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1430 Time @ End of Purging: 1445 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 59.5 ft. (BTOC)

Water Level: 4.72 ft BTOC Total Well Depth: 61 ft-BGS Reference: TOC Well diameter: 3/4 in. Volume in well: NA

Screen: 58-61

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1430	Start	25.37	7.68	2.142	34.7	1.09	-161.0	0.47	1.393	clear	
1435	0.5	25.22	7.67	2.148	6.53	1.10	-159.4	0.23	1.396	"	
1440	1	25.19	7.64	2.143	3.23	1.09	-155.3	0.16	1.394	"	
1445	1.5	25.20	7.63	2.142	2.16	1.09	-154.6	0.16	1.393	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002F-059.5-20110419 Time Collected: 1445 Comments: VOCs, VFAs, BrT, TOC, mEES

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

Vol = 0.0026 x 41 + 0.25 = 0.43 gal

FP-20110419-13 (VOCs)

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/19/11 Sampled By: J. Bartlett

Station (Well ID): BW0003E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1352 Time @ End of Purging: 1406 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 10.29 ft. BTOC Total Well Depth: 54 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: ~~52.5~~ 1.1 gal

3/4" → 0.02 x 54 =

Screen: 51 - 54 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										cloudy	
1352	Start 0	begin purge									
1402	0.5 1.0	24.60	7.62	1.861	13.6	0.94	-156.1	0.31	1.210	clear	
1404	1 1.2	24.58	7.60	1.865	8.76	0.95	-158.1	0.28	1.242	"	
1406	1.5 1.9	24.56	7.59	1.870	5.03	0.95	-157.8	0.25	1.246	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003E-052.5-20110419 Time Collected: 1406 Comments: VOC+BA, VFA, Br⁻, I, TOC, M&E, DHL, VC&A

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

3/4" → (0.035 x 6 + 0.25) x 3 = 1.2 gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 19 | 11 Sampled By: D. Bartlett

Station (Well ID): BW0003F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1505 Time @ End of Purging: 1519 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 59.5 ft. (BTOC)

Water Level: 6.15 ft. BTOC Total Well Depth: 61 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.2 gal

3/4" → 0.02 x 61 =

Screen: 58-61 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										cloudy	
1505	Start 0	begin purge									
1515	0.5 1.0	24.60	7.56	2.003	4.93	1.02	-133.1	0.25	1.302	clear	
1517	1 1.2	24.61	7.56	2.003	2.33	1.02	-133.5	0.23	1.302	"	
1519	1.5 1.4	24.56	7.56	2.005	2.16	1.02	-132.5	0.22	1.304	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-059.5-20110419 Time Collected: 1519 Comments: VOCs, BA, VFA, Br, I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.0026 x 71 ft) + 0.5 (1.3 gal) = 1.3 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: Emily Guyer

Station (Well ID): IW0076 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1415 Time @ End of Purging: 1435 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 75 ft. (BTOC)

Water Level: 6.22 Total Well Depth: 80 Reference: TOC Well diameter: 2 in. Volume in well: 13.04 gal

Screen: 70-80

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1415	Start				began purge						
1420	0.5	25.22	7.80	2.358	10.2	1.21	-182.8	0.23	1.536	clear	
1425	1	25.19	7.83	2.370	9.53	1.22	-183.6	0.23	1.542	↓	
1430	1.5	25.23	7.84	2.376	8.25	1.22	-183.5	0.22	1.546	↓	
1435	2	25.22	7.83	2.381	7.92	1.22	-182.3	0.22	1.549		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BIW0076-075.0-20110418 Time Collected: 1435 Comments: VOCs/VFAs/MEE/TOC/Sulfide/ANIONS/Br/I/Alk/Soluble Metals

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+~~0.5(flow thru vol)~~0.25=0.36gal (80)

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 18 | 11 Sampled By: J. Bartlett

Station (Well ID): TW00670 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1113 Time @ End of Purging: 1132 Total Purging Time: 19 min Depth of Pump or Intake Tubing: 40.5 ft. (BTOC)

Water Level: 6.31 ft. BTOC Total Well Depth: 43 ft. 3.25 Reference: TOC Well diameter: 3/4 in. Volume in well: 0.86 gal

3/4" → 0.02 x 43 =

Screen: 38-43 ft. BTS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										cloudy	
1113	Start 0	begin purge			57.0	0.98	-252.9	0.38	1.261	"	
1123	0.5 1.0	25.89	7.90	1.939	12.3	0.98	-264.9	0.36	1.261	clear	
1128	1 1.5	25.81	7.92	1.941	6.78	0.98	-267.6	0.35	1.260	"	
1130	1.5 1.7	25.85	7.91	1.939	5.38	0.98	-271.9	0.35	1.260	"	
1132	2 1.9	25.81	7.89	1.940							
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-TW00670-040.5-20110418 Time Collected: 1132 Comments: VOC + NBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 53 + 0.25) x 3 = 1.0 gal

Monitor.. Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: J. Bartlett

Station (Well ID): JW006701 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1145 Time @ End of Purging: 1219 Total Purging Time: 34 min Depth of Pump or Intake Tubing: 68.0 ft. (BTOC)

Water Level: 3.61 ft. BTOC Total Well Depth: 73 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.5 gal

3/4" → 0.02 x 73 =

Screen: 63-73 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										very cloudy	
1145	Start 0	beginning purge									
1200	0.5 1.5	25.74	7.77	1.963	194	1.00	-156.5	0.78	1.276	cloudy	
1205	1 2.0	25.95	7.78	1.963	64.4	1.00	-158.5	0.39	1.276	"	
1210	1.5 2.5	25.84	7.79	1.961	35.6	0.99	-158.1	0.37	1.275	clear	
1215	2 3.0	25.70	7.77	1.958	19.7	0.99	-158.2	0.38	1.273	"	
1217	2.5 3.2	25.83	7.77	1.959	18.7	0.99	-155.9	0.37	1.273	"	
1219	3 3.4	25.88	7.76	1.961	17.2	0.99	-153.5	0.38	1.275	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-JW006701-068.0-20110418 Time Collected: 1219 Comments: VOC + nBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 83 + 0.25) x 3 = 1.1 gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 / 18 / 11 Sampled By: J. Bartlett

Station (Well ID): TW00708 D 38. Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1007 Time @ End of Purging: 1021 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 40.5 ft. (BTOC)

Water Level: ~~3.5.51~~ 5.45 ft. BTOC 3.8 Total Well Depth: ~~93~~ ft. BGS 90 Reference: TOC Well diameter: 3/4 in. Volume in well: ~~2.82~~ 2.32 gal

Screen: ~~ft~~ 38-93 ft. BGS

Sat: 0.02 x 43

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
~~1007~~										cloudy	
~~1014~~	Start 0	begin purge								clear	
1017	0.5 1.0	25.28	7.78	1.862	12.5	0.94	-220.8	0.46	1.215	"	
1019	1 1.2	25.32	7.83	1.887	7.43	0.96	-236.0	0.45	1.228	"	
1021	1.5 1.4	25.28	7.83	1.902	5.99	0.96	-220.0	0.43	1.237	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-TW00708-040.5-20110418 Time Collected: 1021 Comments: VOL +nBA, TOC

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

0.041 x 0.035 x 53 + 0.25 = 0.52 x 3 = 1.6 gal

Monitor_ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 18 | 11 Sampled By: J. Bartlett

Station (Well ID): IW007001 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1032 Time @ End of Purging: 1056 Total Purging Time: 24 min Depth of Pump or Intake Tubing: 70 ft. (BTOC)

Water Level: 4.95 ft. BTOC Total Well Depth: 75 ft. BTOC Reference: TOC Well diameter: 3/4 in. Volume in well: 1.5 gal

Screen: 65-75 ft. BTOC 3/4" → 0.02 x 75 =

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										cloudy	
1032	Start 0	begin	purge								
1042	0.5 1.0	25.55	7.88	1.965	101	1.00	-160.1	0.68	1.278	"	
1047	1 1.5	25.35	7.81	1.992	42.8	1.01	-152.5	0.51	1.295	"	
1052	1.5 2.0	25.68	7.81	2.008	16.8	1.02	-133.4	0.51	1.305	clear	
1054	2 2.2	25.79	7.77	2.011	16.2	1.02	-128.4	0.48	1.309	"	
1056	2.5 2.4	25.65	7.80	2.018	13.7	1.03	-122.5	0.47	1.312	"	
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW007001-070.0-20110418 Time Collected: 1056 Comments: VOC + nBA, TOC

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041)(0.035 x 75)+0.5(3) = 1.1 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4 | 18 | 11 Sampled By: J. Bennett

Station (Well ID): IW00710D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1342 Time @ End of Purging: 1356 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 40.5 ft. (BTOC)

Water Level: 3.02 ft. BTOC Total Well Depth: 43 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.9 gal

3/4" → 0.02 x 43 =

Screen: 38-43 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										clear	
1342	Start	begin purge									
1352	0.5 1.0	24.57	7.87	1.832	1.36	0.93	-171.1	~~1.60~~ 1.56	1.192	"	
1354	1 1.2	24.64	7.94	1.836	0.94	0.93	-175.6	0.95	1.194	"	
1356	1.5 1.4	24.67	7.91	1.837	0.69	0.93	-172.0	0.68	1.194	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW00710-040.5-20110418 Time Collected: 1356 Comments: VOC + nBA, TOC

When using 3/4 6-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 53 + 0.25) x 3 = 1.40 gal

Monitor_ _ Well Sampling

Site: LC34 Project No.: TR0272 Task: 35 Date: 4/18/11 Sampled By: J. Bartlett

Station (Well ID): IW0071D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1409 Time @ End of Purging: 1423 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 70.0 ft. (BTOC)

Water Level: 3.23 ft. BTOC Total Well Depth: 75 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.5 gal

3/4" → 0.02 x 75 =

Screen: 65-75 ft. BLS

Correction Factors: (2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
										cloudy	
1409	Start 0	begin purge									
1419	0.5 1.0	24.91	7.87	1.887	19.8	0.96	-124.3	0.38	1.230	clear	
1421	1 1.2	24.92	7.95	1.909	13.0	0.97	-128.1	0.37	1.242	"	
1423	1.5 1.4	24.95	7.82	1.920	7.59	0.97	-124.4	0.34	1.249	"	
	2										
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: ~~LC34-IW0071D1-3.3~~ LC34-IW0071D1-070.0-20110418 Time Collected: 1423 Comments: VOC + NBA, TOC

When using 3/4-in. ID tubing EV= ((0.041) (0.035x tubing length))+0.5(flow tru vol)= gal

(0.041 x 0.035 x 85 + 0.25) x 3 = 1.1 gal

Geosyntec consultants

DAILY FIELD REPORT

Project: LL39 RAD
Project No.: TR0272
Contractors: EDS, Vironex

Date: 6/20/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X Injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0630: at office (Rebecca Dapsato, Joe Barthelt) load truck. Travel to site. Met. ~~EDS~~

0730: Met EDS and Vironex at NASA Badging station. Badging info not submitted. Rebeca Dapsato contacts NASA PM. to submit appropriate paperwork.

1000: on site Tailgate safety meeting. Vironex and EDS prep/mob to locations. RB and JB mark injection point locations. Call Dig Alert to dig

1045: EDS begin drilling at 1st location

1053: calibrate MiniRAE 3000 SN: ~~108-100~~ 542-000852
0 cal = 0 ppm
100 cal = 98.6 ppm

1215: Vironex Tailgate Safety Meeting. Vironex perform leak test of fresh water

1245-115: Lunch.

6gpm = 15 psi, 12gpm = 38 psi

Plans/Future Activities

6/22/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34 RD
Project No.: TR0272
Contractors: EPS, Manev.

Date: 6/20/11
Task No.: 35

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X Injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1405: begin injection at IP0001. ~~25~~ 23-25 Ft.
1495: begin injection at IP0002.
1720: complete injection at IP0001 and IP0002 to 42 Ft. BGS (shallow)
1730: off site.
1800: end of day.

Plans/Future Activities

6/22/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC39
Project No.: TR0272
Contractors: EOS, Vironex

Date: 6/21/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: x injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0630: met at office (Joe Bartlett and Rebecca Rapstine)
load vehicles. Travel to site
0705: on-site. call LCAPS duty office. OK to dig.
0715: Tailgate Safety meeting.
0730: Calibrate MiniRAE 3000 SN = 592-000859
0 Cal. = 0.0 ppm
100 Cal. = 104.1 ppm
0755: continue injection on IP0001 and IP0002. Begin at 42-44 Ft. BGS
* skipped interval 41.5' - 42 in order to inject completely in clay layer
0825: Sampled Batch 10 (mixed at CB10)
→ BATCH10-20110621-0825 [no iodide]
0955: end injection for locations IP0001 and IP0002. EOS tremmie grout both locations from 62 ft BGS to surface.
1115: Begin injection IP0003 and IP0004 at 23-25 Ft. BGS
1127: Sampled Batch 17 (mixed at 1120) [with iodide]
→ BATCH17-20110621-1127

Plans/Future Activities

6/21/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LTM PRB
Project No.: TR0172
Contractors: EDS, Vironex

Date: 6/21/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X Injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1215 - 1245: lunch IDW: 183863, pallet: 183815
1400: 1½" Suction hose to injection trucks leaking. PTO (used to engage power for hydraulic pump) broke down. Vironex attempts to fix.
1500: Vironex fixed PTO. New hose being picked up by Vironex. Continue injection.
1555: Complete injection IP0003 and IP0004 to 42 ft. BGS. Continue to ~~Begin~~ Begin injection at IP0005 (5 ft. screen). First interval at 23 - 28 ft. BGS. 6/22/11
1725: Sampled Batch 26 (mixed at 1710) [with iodide]
→ BATCH26-20110621-1725
1800: End injection at IP0005 to 42 ft. BGS.
1850: off site.
1915: at office. unload vehicles.
1930: end of day

Plans/Future Activities

6/21/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34 PRB
Project No.: TR0272
Contractors: EDS, Vironex

Date: 6/22/11
Task No.: 35

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X Injection.

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0645: Jon Bartlett on site. Call Daily office. OK to rig. Call Rebecca Dapra to (PM) for morning check-in.
0705: Tailgate Safety Meeting.
0710: Calibrate MiniRAE 3000 SN: 592-000859
O Cal: 0.0 ppm
100 Cal: 99.9 ppm
0745: Sampled Batch 29 (mixed at 0730)
→ BATCH29-20110622-0745 [no iodide]
Continue injection at IP0003, IP0004, IP0005. ~~First to run~~ JB
~~set~~ from 42 ft. BGS.
1150: Sampled Batch 39 (mixed at 1150)
→ BATCH39-20110622-1150 [no iodide]
1200: Complete injection at IP0003, IP0004, IP0005.
Vironex repair switch hose to allow two 250 gal. totes to be used
1215-1230: Lunch
1230: pull out of and grout IP0003, IP0004, IP0005

Plans/Future Activities

6/22/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LL34 PRD
Project No.: TR0172
Contractors: EDS, Vironex

Date: 6/24/11
Task No.: 35

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X Injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1405: EDS complete grouting IP0003, IP0004, IP0005. Mob to IP0006, IP0007, IP0008 (~~4~~ (5) (6)
1430: Begin injection IP0006 IP0007, IP0008.
1458: Sampled Batch 40 (mixed at 1440) [with sodium]
→ BATCH 40 - 20110622 - 1458
1655: Sampled Batch 49 (mixed at 1655) [with sodium]
→ BATCH 49 - 20110622 - 1655
1720: End injection at IP0006, IP0007, IP0008 to 42 ft. BGS
Vironex repair/check for leaks in piping.
1735: off site. Call Rebecca Peparto for end of day check-in
1800 at office. load vehicle for tomorrow
1815: end of day.

Plans/Future Activities

6/22/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LEJ4 REM
Project No.: FRA272
Contractors: EOS, Vironex.

Date: 6/23/11
Task No.: 35

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: ~~Injection~~

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

Jim Barton
0645: on site. Call Duty office. OK to dig.
0700: Tailgate Safety Meeting.
Calibrate MiniRAE 3000 SN: 592-000859
0 Cal: 0.0 ppm
100 Cal: 99.9 ppm
0715: Call Rebecca Aspreto (PM) for morning check-in.
0720: EOS cleared location to move pt. @ ~6 ft. NE.
0735: Begin injection at IP0006, IP0007, IP0008 at 44, 44, 47 ft. BGS.
0750: Sampled Batch 54 (pumped at 0750)
→ BATCH54-20110623-0750 [no radon]
0835: Vironex Generator shut down. Stop pumping
1010: Vironex left site to rent a generator for duration of injection event.
1130: Vironex returned with generator
1145: Continue injection at IP0006, IP0007, IP0008.

Plans/Future Activities

6/23/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LCSA PRO
Project No.: TR0272
Contractors: EDS, Vironex

Date: 6/23/11
Task No.: 35

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X Injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1155: Sampled Batch 57 (Pumped at 1150)
→ BATCH57-20110623-1150 [no iodide]
1320: End injection for IP0006, IP0007, IP0008 to 62 ft BGS. EDS pulled tools and tremmie grout to surface in locations IP0006, IP0007, IP0008.
1500: Begin injection on IP0009, IP0009, IP0010 at 23-25 ft BGS
1540: Sampled Batch 67 (pumped at 1540)
→ BATCH67-20110623-1540 [with iodide]
1730: End injection of IP0009, IP0010, IP0011 to 42 ft BGS
Call Rebecca Deponte for end of day check in.
Vironex clean up site. Ready equipment for tomorrow.
1800: off site.
1920: at office and vehicle
0830: end of day

Plans/Future Activities

K = 5 e = 11
m = 6
n = 7
O = 8
J = 9
f = 10

6/23/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: 434 PRD
Project No.: TR0272
Contractors: EDS, Vironex

Date: 6/24/11
Task No.: 16

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0650: On site. Call Petty office OK to dig.
0705: Tailgate Safety Meeting
0710: Text Rebecca Dapcevich (PM) for morning checkin.
0715: Calibrate MiniRAE 3000 S/N: 592-~~000ESG~~ ~~0621~~ - Could not calibrate. ~~Except~~ will not use PID for remainder of ~~the day~~! - Lamp needs replacement.
0720: Begin injection at IP0009, IP0010, IP0011 at 42-44 ft BGS.
0920: End injection at IP0009, IP0010, IP0011 to 62 ft. BGS.
EDS pull tools out and grout locations.
1110: Begin injection at IP0012, IP0013, IP0014 at 23-25 ft. BGS.
1145 ← 1205: Lunch
1350: Suction line broke inside Vironex truck. Sprayed laptop with liquid. Shut down pumping.
1440: Resume pumping. Vironex tied harness around suction line to relieve stress at connections (where break occurred).

Plans/Future Activities

a = 12
b = 13
c = 14

TRS Customer Service
1-800621-6354

6/24/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34 RAD
Project No.: TR0272
Contractors: EDS, Vironex

Date: 6/24/11
Task No.: 35

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X injection.

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1530: Called NASA Weather: Phase 2 for duration of day. Shut down work. Clean up site
At 56 ft BGS. partially injected
1625: Called NASA Weather, Still in phase 2.
1635: off Site.
1700: at office. ready equipment for monday (6/20/11)
1715: end of day

Plans/Future Activities

next: h, i, l
next: j, c, d

6/24/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: U34 AEO
Project No.: TR0272
Contractors: EOS, Vibonx

Date: 6/27/11
Task No.: 3.6

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0630: Joe Bartlett at office. Load vehicle. Travel to site.
0655: On site. Call Duty Office. OK to Dig.
0700: Tailgate Safety Meeting. Text Rebecca Dapsis (PM) for morning check-in.
0715: Continue injecting. IP0012, IP0013, IP0014. 54-56 ft. BGS
0800: Complete injection for IP0012 (to 61 ft. BGS, refusal from DPT rig at 61 ft.), IP0013 (62 ft. BGS), IP0014 (62 ft. BGS). EOS pull tools out of ground, tremmie grout to surface.
0955: Begin injection at IP0015, IP0016, IP0017 at 23-25 ft. BGS
1000: Sampled Batch 112. (pumped at 0955)
→ BATCH 112-20110627 @ 1000 [with iodide]
1110 Sampled Batch 117 (pumped at 1058)
→ BATCH 117 - 20110627 @ 1110 [with iodide]
1200-1230: Lunch
1315: Sampled Batch 127 (pumped at 1315)
→ BATCH 127 - 20110627 @ 1315 [no iodide]

Plans/Future Activities

h = 15
i = 16
j = 17

6/27/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LCSA PRD
Project No.: TR0272
Contractors: EDS, Vironex

Date: 6/27/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: ~~X~~ injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1450 - Sampled Batch 134 (pumped at 1450)
→ BATCH 134 - 20110627 @ 1450 [no iodide]
1500: End injection for IP0015, IP0016, IP0017 TD 62 ft. BLS.
EDS pull tools out and trimmie grout to surface location IP0016 only.
1540: EDS complete grout for IP0016.
Called NASA Weather: Phase 2 for remainder of day.
Dept Rebecca Dapaito (PM) for evening check-in.
1545: Off Site.
1615: at office. load vehicle for tomorrow; discuss GW sampling plans w/ Ms Rebecca Dapaito.
~~out @~~
1700: end of day.

Plans/Future Activities

grout IP0015, IP0017
Inject 18, 19, 20.

6/27/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LCSY Rio
Project No.: TR0272
Contractors: EDS, Vironex

Date: 6/28/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0630: at Iron Bartlett at office. Load Vehicle. Travel to Site.
0700: on site. Call Duty Office. OK to dig.
Text Rebecca Dapcato (PM) for morning check-in
Tailgate Safety Meeting.
0745: EDS continue to pull out tools from ground and tremmie grout to surface locations IP0015, IP0017.
0900: Sampled Batch 136 (pumped at 0855)
→ BATCH 136-20110628 [with iodide] @ 0900
Begin injection at IP0018, IP0019, IP0020 at 23-25 FT BLS
1040: Sampled Batch 144 (pumped at 1036)
→ BATCH 144-20110628 @ 1040 [with iodide].
1115-1130: Lunch
1237: Sampled Batch 152 (pumped at 1232)
→ BATCH 152-20110628 @ 1237 [no iodide].
1540: End injection at IP0018, IP0019, IP0020. to 62 FT. BLS.
EDS pull all tools out of ground. Tremmie grout to surface
Vironex Load Equipment

Plans/Future Activities

d: 18
c: 19
j: 20

6/28/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: U34-PRD
Project No.: FR0272
Contractors: EDS, Vironex

Date: 6/28/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other: X injection

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1545: Vironex complete pack up & off site.
1600: EDS clean up site. Build drum pit for GW sampling on Thur. (6/30/11)
1615: Off site. Call Rebecca Deputo (PM) for evening checking.
1700: end of day

Plans/Future Activities

6/28/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34 RED
Project No.: TR0272
Contractors: EDS, KBLabs

Date: 6/30/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT: X GW Sampling
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0600: Joe Bartlett at Office. Load vehicle. Travel to site
0645: On site. Calibrate YSI.
EDS on site. KBLabs on site
0710: Tailgate Safety Meeting
Call Duty Office. OK to dig.
~~Left~~ Call Rebecca Dporta for morning check-in
0720: EDS Mob to location DPT328. Hand auger to 5Ft BGS.
Begin sampling DPT328.
0855: EDS complete sampling DPT328. Pull tools out. Trimmie grout to surface.
0915: EDS Mob to DPT329. Hand auger to 5 ft BGS. Begin sampling DPT329.
0935: EDS clean & samples.
1030: Complete sampling location DPT329. Pull tools out. Trimmie grout to surface.
1100: EDS Mob. to DPT330. Hand auger to 5 Ft. BGS. Begin sampling DPT330

Plans/Future Activities

6/30/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34 PSD
Project No.: TR0272
Contractors: EDS, KBLabs

Date: 6/30/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT: X GW Sampling.
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1200-1230: Lunch
1305: Complete sampling DPT330. Pull out tools. Tremmie grout to surface
1330: EDS Mob. to DPT331. Hand auger to 5 ft. BLS. Begin sampling.
1440: Call NASA Weather. Phase 2 in 20 minutes.
Complete sampling DPT331 at 43-47 ft. BLS. Pull out tools.
Tremmie Grout to surface.
Pack up/clean up site. Phase 2 will last rest of day.
1510: Take IDW sample.
LC34-IDW-183863-20110630 @ 1510
1530: Call NASA Weather for update. Phase 2 is arriving on CCAFS side
1600: off site

Plans/Future Activities

6/30/11
Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 RED Project #: TR0272 Field Personnel: J. Bartleh

Water Quality Meter - Model/Serial #: YSI 556 MPS / 08A100738 Turbidimeter - Model/Serial # NA

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) (CCV)		6/30/11	0645	23.20	8.546	7.70/8.55	90.1 / 100.0	(P) F
CAL ICV (CCV)		"	1688	23.60	8.482	9.49	111.8	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		6/30/11	0654	1.413	8705	02-2012	1.461 / 1.413	(P) F
CAL ICV (CCV)		"	1702	"	"	"	1.415	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) (CCV)		6/30/11	0650	4.0	2102011	01-2013	4.07	(P) F
CAL (ICV) (CCV)				~~10~~ 10.0	2101326	07-2012	10.02	(P) F
CAL (ICV) (CCV)				~~7.0~~ 7.0	2101037	12-2012	7.06	(P) F
CAL ICV (CCV)				4.0	"		4.19	(P) F
CAL ICV (CCV)			1642	7.0	"		7.18	(P) F
CAL ICV (CCV)				10.0	"		10.01	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		6/30/11	0700	240 @ 25	2981	01-2016	298.9 / 240	(P) F
CAL ICV (CCV)		"	1705	"	"	"	234.9	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments: Failed DO CCV

Geosyntec consultants

DPT GEOCHEMICAL DATA FORM
DPT Location: ~~DPT328~~ 328

Project Number: TR0272
Date: 6/30/11

DPT Location	Sample Depth	pH std units	Conductivity mS/cm	Turbidity NTUs	Diss. O_2 mg/L	Temp deg. C	Salinity %	TDS g/L	ORP mV	color
0732	28-32	7.71	1.693	-	6.00	25.17	0.88	1.135	-166.1	grey
0739	↓	7.77	1.755	-	0.79	25.70	0.88	1.140	-181.3	
0736	↓	7.77	1.754	-	0.53	25.69	0.88	1.140	-183.6	
	Sampled: LC34-DPT328-20110630 @ 0736									
0749	37-41	8.01	1.976	-	11.22	24.87	1.01	1.300	-179.8	grey
0751	↓	7.95	2.057	-	1.80	25.24	1.10	1.413	-194.9	
0753	↓	7.94	2.239	-	0.51	25.37	1.15	1.470	-199.2	
	Sampled: LC34-DPT328-0859.0-20110630 @ 0753									
0806	43-47	8.05	2.316	-	6.37	25.13	1.19	1.509	-170.8	brown
0808	↓	8.01	2.331	-	1.01	25.30	1.20	1.521	-184.5	
0810	↓	7.99	2.354	-	0.42	25.35	1.21	1.535	-184.5	
	Sampled: LC34-DPT328-0845.0-20110630 @ 0810									
0823	49-53	8.04	2.205	-	4.06	25.32	1.13	1.440	-185.1	tan
0825	↓	8.08	2.221	-	0.74	25.40	1.14	1.449	-198.7	
0827	↓	8.09	2.240	-	0.44	25.39	1.15	1.464	-204.5	
	Sampled: LC34-DPT328-0851.0-20110630 @ 0827									
0845	55-59	8.20	2.058	-	4.20	25.34	1.05	1.336	-128.1	grey
0847	↓	8.15	2.057	-	0.90	25.34	1.05	1.337	-144.9	
0849	↓	8.12	2.056	-	0.43	25.35	1.05	1.337	-147.2	
	Sampled: LC34-DPT328-0857.0-20110630 @ 0849									

Note: Insert units if not provided on sheet.

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YSI failed DO CCV

DPT GEOCHEMICAL DATA FORM
DPT Location: DPT329

Project Number: TR0272
Date: 6/30/11

DPT Location	Sample Depth	pH std units	Conductivity mS/cm	Turbidity NTUs	Diss. O_2 mg/L	Temp deg. C	Salinity %	TDS g/L	ORP mV	color
0927	28-32	8.62	1.065	-	5.90	26.21	0.53	0.694	-169.3	grey
0929	↓	8.52	1.074	-	0.92	26.38	0.53	0.702	-192.5	
0931	↓	8.43	1.086	-	0.42	26.44	0.54	0.710	-207.8	
	Sampled:	LC34-DPT329-030.0-20110630@0931								
0951	37-41	8.32	1.474	-	5.09	26.51	0.74	0.966	-127.3	grey
0953	↓	8.34	1.499	-	0.68	26.60	0.76	0.983	-151.0	
0955	↓	8.31	1.522	-	0.31	26.67	0.76	0.993	-159.7	
	Sampled:	LC34-DPT329-039.0-20110630@0955								
1008	43-47	8.23	1.593	-	4.76	27.18	0.80	1.036	-60.0	brown
1010	↓	8.19	1.592	-	1.50	27.19	0.80	1.034	-71.7	
1012	↓	8.17	1.589	-	1.23	27.17	0.79	1.030	-91.4	
	Sampled:	LC34-DPT329-045.0-20110630@1012								
1025	49-53	8.29	1.406	-	7.12	27.55	0.70	0.920	-123.2	grey
1027	↓	8.29	1.423	-	1.49	27.46	0.71	0.930	-157.1	
1029	↓	8.26	1.436	-	0.76	27.34	0.72	0.937	-173.9	
	Sampled:	LC34-DPT329-051.0-20110630@1029								

Note: Insert units if not provided on sheet.

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YSI failed DO CCV

DPT GEOCHEMICAL DATA FORM
DPT Location: DPT330

Project Number: JR0272
Date: 6/30/11

DPT Location	Sample Depth	pH std units	Conductivity m S/cm	Turbidity NTUs	Diss. O_2 mg/L	Temp deg. C	Salinity %	TDS g/L	ORP mV	color
1115	8-12	8.35	0.597	-	2.72	29.31	0.29	0.395	-159.2	tan
1117	↓	8.14	0.608	-	0.56	29.14	0.29	0.394	-154.7	
1119	↓	7.96	0.606	-	0.34	29.01	0.29	0.394	-152.1	
	Sampled: LC34-DPT330-010.0-20110630 @ 1119									
1128	28-32	7.96	1.427	-	4.28	29.49	0.73	0.955	-202.5	grey
1130	↓	8.03	1.495	-	0.92	28.90	0.75	0.986	-211.2	
1132	↓	8.03	1.526	-	0.58	28.43	0.77	0.998	-211.5	
	Sampled: LC34-DPT330-030.0-20110630 @ 1132									
1143	37-41	8.10	2.195	-	7.48	29.64	1.12	1.433	-167.8	grey
1145	↓	8.07	2.211	-	0.83	29.76	1.12	1.441	-179.7	
1147	↓	8.06	2.277	-	0.34	29.47	1.17	1.496	-185.9	
	Sampled: LC34-DPT330-039.0-20110630 @ 1147									
1240	43-47	8.19	1.916	-	0.06	29.95	0.96	1.241	-175.4	grey
1242	↓	8.14	1.905	-	0.24	29.52	0.96	1.238	-191.8	
1244	↓	8.12	1.904	-	0.20	28.94	0.96	1.235	-198.7	
	Sampled: LC34-DPT330-045.0-20110630 @ 1244									
1258	49-53	8.20	2.134	-	6.05	29.49	1.10	1.416	-154.9	grey
1300	↓	8.13	2.207	-	0.95	29.01	1.13	1.448	-177.2	
1302	↓	8.09	2.237	-	0.47	28.63	1.14	1.457	-184.9	
	Sampled: LC34-DPT330-051.0-20110630 @ 1302									

Note: Insert units if not provided on sheet.

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YSI failed DO CCV

~~CLP 800 3387~~

DPT GEOCHEMICAL DATA FORM
DPT Location: DPT331

Project Number: TR0272
Date: 6/30/11

DPT Location	Sample Depth	pH std units	Conductivity mS/cm	Turbidity NTUs	Diss. O_2 mg/L	Temp deg. C	Salinity %	TDS g/L	ORP mV	color
1344	14 - 18	8.32	0.884	-	5.25	28.00	0.42	0.559	-194.6	gray
1346	↓	8.03	0.849	-	0.17	27.50	0.41	0.545	-197.2	
1348	↓	7.88	0.829	-	0.50	27.11	0.40	0.535	-195.1	
	Sampled:	LL34-DPT331-0	30.0-20110	630 @	1348					
1357	28 - 32	7.86	1.571	-	3.38	28.39	0.80	1.041	-183.5	gray
1359	↓	7.92	1.625	-	1.01	28.08	0.82	1.069	-198.0	
1401	↓	7.93	1.660	-	0.55	27.86	0.84	1.089	-204.7	
	Sampled:	LL34-DPT331-03	0.0-20110	630 @	1401					
1412	37 - 41	7.86	2.410	-	3.48	28.79	1.24	1.581	-148.2	gray
1414	↓	7.78	2.437	-	0.55	28.58	1.25	1.592	-154.8	
1416	↓	7.74	2.478	-	0.33	28.22	1.31	1.660	-161.9	
	Sampled:	LL34-DPT331-03	1.0-20110	630 @	1416					
1429	43 - 47	8.01	2.681	-	4.09	28.53	1.38	1.746	-109.9	tan
1431	↓	7.96	2.692	-	2.71	28.32	1.39	1.752	-126.5	
1433	↓	7.88	2.700	-	1.62	27.97	1.39	1.756	-141.9	
	Sampled:	LL34-DPT331-04	5.0-20110	630 @	1433					
	~~49 - 53~~			-						
	↓			-						
	Sampled:	LL34-DPT331-05	1.0-20110	630 @						

Note: Insert units if not provided on sheet.

J:\adminshr\rem-frm\DPTFRM.XLS

YSI failed DO ccv

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: TR0272
Contractors: NA

Date: 7/7/11
Task No.: 36

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: ✓
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0730 Pack Truck
Get ice
Travel to site
get badge
0830 arrive at site
Sample RW0001 C,D,E RW0002 C,D,E
RW0003 C,D,E RW0007 & RW0008
1130 Travel back to office
1230 lunch
1330 Calibrate Equipment & unpack truck.

Plans/Future Activities

Signature/Date 7/7/11

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 PED Project #: TR0272 Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 08A100738 Turbidimeter - Model/Serial # HACH 2100Q / 10110C006392

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		7/6/11	1605	26.02	8.114	8.49/8.11	104.6/100.0	P F
(CAL) ICV (CCV)		7/6/11	1855	26.60	8.026	8.10	100.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL (ICV) CCV		7/6/11	1620	1.413	0061813	Dec-2011	1.345/1.413	P F
CAL ICV (CCV)		7/6/11	1427	"	"	"	1.453	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		7/6/11	1610	4.0	2002034	01-2012	4.05/3.97	P F
CAL ICV CCV		↓	↓	7.0	2002012	01-2012	7.06/7.00	P F
CAL ICV CCV		↓	↓	10.0	1002035	07-2011	9.93/10.00	P F
CAL ICV (CCV)		7/6/11	1422				4.00	P F
CAL ICV CCV		↓		"	"	"	7.00	P F
CAL ICV CCV							9.90	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		7/6/11	1025	240 @ 25	2294	03-2015	236.7/240.0	P F
CAL (ICV) (CCV)		7/6/11	1932	"	"	"	239.6	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	7/6/11	9.19	P F
(CAL) ICV (CCV)	7/6/11	9.35	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	7/6/11	19.9	P F
(CAL) ICV (CCV)	7/6/11	20.0	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	7/6/11	97.4	P F
(CAL) ICV (CCV)	7/6/11	101	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	7/6/11	789	P F
(CAL) ICV (CCV)	7/6/11	792	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

Comments:

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: Emily Lawson (eml)

Water Quality Meter - Model/Serial #: YSI 556 MPS/05D2373 AK Turbidimeter - Model/Serial # Hach 2100Q SN 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		7/6/11	1610	24.5	8.340	6.26-8.37	72.6-100.1	(P) F
CAL ICV (CCV)		7/7/11	1400	23.6	8.482	8.21	96.7	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		7/6/11	1610	1.413	0061813	6/30/11	1.400-1.413	(P) F
CAL ICV (CCV)		7/7/11	1400	"	"	"	1.425	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) ICV CCV		7/6/11	1610	4	20022034	01-2012	3.96-4.00	(P) F
CAL ICV CCV		↓	↓	7	20022012	01-2012	7.03-7.00	(P) F
CAL ICV CCV		↓	↓	10	10022035	07-2011	9.90-9.95	(P) F
(CAL) ICV (CCV)		7/7/11	1400	Same as	above		4.04	(P) F
CAL ICV (CCV)		↓	↓				7.02	(P) F
CAL ICV (CCV)		↓	↓				10.04	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		7/6/11	1610	240 @ 25°	2244	~~6/30/11~~	226.8-240.2	(P) F
CAL ICV (CCV)		7/7/11	1400	"	"	03/2015	236.0	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) ICV CCV	7/6/11	11.0	(P) F
CAL ICV (CCV)	7/7/11	11.0	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	7/6/11	20.1	(P) F
CAL ICV (CCV)	7/7/11	19.9	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	7/6/11	99.6	(P) F
CAL ICV (CCV)	7/7/11	101	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) ICV CCV	7/6/11	806	(P) F
CAL ICV (CCV)	7/7/11	785	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

6/23/2009

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Emily Lawson~~ Joe Bartlett JB

Station (Well No.): BW0001C Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Solinst Durham

Time @ Start of Purging: 0842 Time @ End of Purging: 0900 Total Purging Time: 18 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 9.21 ft. BTOC Total Well Depth: ~~38.5~~ 40 Reference: TOC Well diameter: JB 1 3/4 Condition of Well: good

Screen 37-40

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
0842	Start	Begin	Purge							clear	
0852	0.5 1.0	25.81	7.15	2.549	4.21	-121.9	0.32	1.31	1.658	"	
0855	1 1.3	25.91	7.16	2.574	1.93	-124.2	0.28	1.32	1.674	"	
0857	1.5 1.5	25.99	7.16	2.585	1.64	-125.0	0.26	1.33	1.681	"	
0859 0900	2 1.9	26.08	7.15	2.590	1.60	-125.4	0.23	1.33	1.684	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001C-038.5

Sample ID: 20110707 Time Collected: 0900 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 45 0.25 = 0.37 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Emily Lawson~~ Joe Bartlett JB

Station (Well No.): BW0001D Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder Solinst

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Durham

Time @ Start of Purging: 0915 Time @ End of Purging: 0932 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 45.45 ft. (BTOC) Tape

Water Level: 10.82 Total Well Depth: 47 Reference: TOC Well diameter: JB 1 1/4" Condition of Well: good

Screen 44-47

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
0915	Start	Begin	Purge							cloudy	
0922	0.5	25.66	7.41	2.961	65.4	-79.3	0.97	1.54	1.924	"	
0928	1	25.63	7.37	2.963	8.33	-98.7	0.32	1.54	1.926	clear	
0930	1.5 i.1	25.65	7.35	2.961	4.78	-99.9	0.27	1.54	1.924	"	
0932	2 i.3	25.62	7.33	2.960	4.74	-101.0	0.24	1.54	1.924	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001D-045.5-20110707 Time Collected: 0932 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 50 025 = 0.38 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Emily Lawson~~ Joe Bartlett JB

Station (Well No.): BW0001E Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder Solinst

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Durham

Time @ Start of Purging: 0948 Time @ End of Purging: 1002 Total Purging Time: 14 min. Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 5.18 Total Well Depth: 54 Reference: TOC Well diameter: ~~1~~ 1 3/4" Condition of Well: good

Screen 51-54

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
0948	Start	Begin Pump								clear	
0953	0.5	25.60	7.61	2.554	28.4	-127.1	0.36	1.31	1.661	"	
0958	1	25.58	7.60	2.567	8.22	-138.9	0.22	1.32	1.669	"	
1000	1.5 1.2	25.60	7.60	2.574	5.71	-141.6	0.19	1.32	1.673	"	
1002	2 1.4	25.55	7.60	2.578	3.88	-144.5	0.17	1.33	1.676	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001E-0525-20110707 Time Collected: 1002 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 55 0.25 = 0.39 gal

Monito..g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Emily Lawson~~ Joe Bartlett JB

Station (Well No.): BW0002C Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (___ Teflon ___ SS ___ Other) X Peristaltic ___ Centrifugal ___ Bladder Solinst

Pump (Make & Model): geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Durham

Time @ Start of Purging: 1026 Time @ End of Purging: 1042 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.65 Total Well Depth: ~~38.5~~ 40 ~~3740~~ Reference: TOC Well diameter: 3/4" Condition of Well: good

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
										clear	
1026	Start	begins	Purg								
1031	0.5	26.24	7.45	2.380	12.0	-206.0	0.23	1.22	1.547	"	
1036	1	26.31	7.48	2.407	8.99	-230.2	0.19	1.23	1.564	"	
1039	1.5 1.3	26.46	7.51	2.417	6.04	-242.4	0.17	1.24	1.571	"	
1042	2 1.6	26.51	7.53	2.422	6.08	-255.1	0.16	1.24	1.575	"	
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002C-0885-20110707 Time Collected: 1042 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 45 0.25 = 0.37 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: Emily Lawson

Station (Well No.): BW0002D Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1115 Time @ End of Purging: 1135 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 6.93 Total Well Depth: 47 Reference: TOC Well diameter: 3/4 Condition of Well: good

end ~~35~~ 44-47

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
1115	Start						begin purge			clear	
1120	0.5	26.42	7.35	2.413	16.6	-151.9	0.24	1.24	1.571	clear	
1125	1	26.37	7.37	2.418	15.5	-156.7	0.22	1.24	1.572	↓	
1130	1.5	26.40	7.38	2.419	13.1	-158.5	0.21	1.24	1.573		
1135	2	26.38	7.39	2.425	11.7	-161.0	0.20	1.24	1.577		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002D-045.5-

Sample ID: 20110707 Time Collected: 1135 Comments: VOC Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 50 +0.25 = 0.38 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Emily Lawsen~~ Joe Bartlett JB

Station (Well No.): BW0002 Purge Method: Pump X Bailer ☐ Pump Type: ☐ Submersible ☐ Teflon ☐ SS ☐ Other) X Peristaltic ☐ Centrifugal ☐ Bladder Solinst

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Durham 52.5

Time @ Start of Purging: 1053 Time @ End of Purging: 1110 Total Purging Time: 17 min Depth of Pump or Intake Tubing: ~~45.5~~ 52.5 ft. (BTOC)

Water Level: 6.45 Total Well Depth: ~~47~~ ~~46.5~~ 54 ~~44.17~~ 51.54 Reference: TOC Well diameter: JB ~~2~~ 2 3/4" Condition of Well: good

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
										grey	
1053	Start	Begin sampling									
1058	0.5	26.32	7.81	2.559	305	-278.8	0.19	1.32	1.665	cloudy	
1103	1	26.00	7.80	2.570	106	-254.6	0.14	1.32	1.672	"	
1106	1.5 1.3	25.75	7.79	2.580	13.1	-233.3	0.13	1.33	1.678	clear	
1108	2 1.5	25.60	7.79	2.586	9.82	-234.9	0.12	1.33	1.681	"	
1110	2.5 1.7	25.55	7.77	2.584	5.57	-229.4	0.12	1.33	1.680	"	
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002D-0713 ~~052.5~~ Time Collected: 1110 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 ~~50~~ 55 0.25 = ~~0.54~~ 0.39 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Joe Barrett~~ Emily Lawson and

Station (Well No.): BW0003C Purge Method: Pump X Bailer ☐ Pump Type: ☐ Submersible (☐ Teflon ☐ SS ☐ Other) X Peristaltic ☐ Centrifugal ☐ Bladder Solinst

Pump (Make & Model): geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Durham

Time @ Start of Purging: 0935 Time @ End of Purging: 0955 Total Purging Time: 20min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.31 Total Well Depth: 40 (37-40) Reference: TOC Well diameter: 3/4 Condition of Well: good

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
					begin purge						
0935	Start										
0940	0.5	25.10	7.26	2.005	3.21	-119.5	0.36	1.02	1.304	clear	
0945	1	25.25	7.26	2.019	14.3	-123.1	0.22	1.03	1.312		
0950	1.5	25.24	7.27	2.019	14.5	-123.2	0.21	1.03	1.312		
0955	2	25.24	7.26	2.019	18.4	-123.4	0.21	1.03	1.312		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-0385-20110707 Time Collected: 0955 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 45 025 = 0.37 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Joe Bartlett~~ Emily Lawson

Station (Well No.): ~~BW00038D~~ BW00031D Purge Method: Pump X Bailer ___ Pump Type: ___ Submersible (_ Teflon _ SS _ Other) X Peristaltic ___ Centrifugal ___ Bladder Solinst

Pump (Make & Model): geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Durham

Time @ Start of Purging: ~~1000~~ 1050 Time @ End of Purging: ~~1115~~ 1110 Total Purging Time: 20min Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 5.27 Total Well Depth: 47 (44-47) Reference: TOC Well diameter: 3/4 Condition of Well: good

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
~~1000~~ 1050	Start				began purge / clear				~~1.259~~		
~~1005~~ 1055	0.5	25.32	5.30	1.924	14.0	51.0	0.46	0.98	~~1.259~~	clear	
~~1010~~ 1100	1	25.64	5.59	2.059	15.7	55.4	0.43	1.05	1.317		
1015 1105	1.5	25.68	5.68	2.080	13.6	23.3	0.43	1.06	1.359	↓	
~~1020~~ ~~1115~~	2	25.70	5.74	2.123	13.1	13.2	0.42	1.11	1.413		
1110	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00031D-045.5-20110707 Time Collected: ~~1050~~ ~~1115~~ 1110 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 50 0.25 = 0.38 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Joe Barthelt~~ Emily Lawson

Station (Well No.): BW0003E Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (_ Teflon _ SS _ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Solinst Durham

Time @ Start of Purging: 1025 Time @ End of Purging: ~~1035~~ 1045 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 5.68 Total Well Depth: 54 (51-54) Reference: TOC Well diameter: 3/4 Condition of Well: good

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
								began	Purge	clear	
1025	Start										
1030	0.5	24.90	6.87	1.996	18.8	-126.8	0.34	1.01	1.285	clear	
1035	1	25.00	6.92	1.980	12.0	-127.5	0.24	1.01	1.286		
1040	1.5	25.02	6.93	1.977	8.96	-127.6	0.23	1.00	1.284		
1045	2	25.02	6.94	1.974	7.02	-127.9	0.22	1.00	1.281		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003E-0525-20110707 Time Collected: 1045 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 55 0.25 = 0.39 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Joe Bartlett~~ Emily Lawson

Station (Well No.): RW0007 Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder Solinst

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Hero~~ Durham

Time @ Start of Purging: ~~0845~~ 0910 Time @ End of Purging: ~~0905~~ 0930 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.32 Total Well Depth: ~~42~~ 35-42 Reference: TOC Well diameter: ~~2~~ 1.5 Condition of Well: good

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
0910	1						begin purge			clear	
~~0845~~	Start										
0915	0.5	25.29	7.23	2.202	4.37	-117.6	0.40	1.12	1.431	clear	
0920	1	25.26	7.22	2.202	3.52	-122.4	0.31	1.12	1.431		
0925	1.5	25.26	7.22	2.201	4.61	-123.2	0.28	1.12	1.431		
~~0905~~	0930 2	25.27	7.22	2.202	4.29	-123.9	0.27	1.12	1.431		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20110707 Time Collected: ~~0910~~ 0930 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 45 0.5 = 0.37 gal

Monito...g Well Sampling

Site: LC34 Project No.: TR0272 Task: 36 Date: 7/7/11 Sampled By: ~~Joe Bartlett~~ Emily Lawson and

Station (Well No.): RW0008 Purge Method: Pump X Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder Solinst

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Heron~~ and Durham

Time @ Start of Purging: 0845 Time @ End of Purging: 0905 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 52 ft. (BTOC)

Water Level: 6.07 Total Well Depth: ~~60~~ and 57 Reference: TOC Well diameter: 6 Condition of Well: good

47-57

Time	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Salinity (%)	TDS (g/L)	Color	Comments
0845	Start				begin purge/clear						
0850	0.5	25.12	7.32	2.347	5.66	-195.5	0.63	1.20	1.526	clear	
0855	1	25.15	7.33	2.347	and 11.0	-205.2	0.56	1.20	1.525		
0900	1.5	25.17	7.34	2.347	8.54	-206.9	0.38	1.20	1.525		
0905	2	25.18	7.35	2.347	8.67	-208.6	0.27	1.20	1.525		
	2.5										
	3										

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20110707 Time Collected: 0905 Comments: VOCs Br I

EV= [pump vol (gal) + ((0.041)(tubing diameter x tubing diameter (in in.) x tubing length (in ft)))+flow thru vol (in gal))] = EV in gal

0 0.25 0.25 60 0.25 = 0.10 gal

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34
Project No.: TR0272
Contractors: —

Date: 08/01/11
Task No.: 37

Work Performed

Well Installation: _____
Soil Borings: _____
DPT: _____
Well Inventory: _____
Other: _____

Sampling Soil: _____
Sampling SW/Sediment: _____
Sampling Monitor Wells: X GW.
Sampling Hazardous Waste: _____
Sampling Drums: _____

Observations/Issues of Concern

0730: Joe Bartlett and Dave Sizemore at office. Calibrate YSI and turbidimeter (ICV). Load vehicles. Travel to site.
0900: On site. Text Rebecca Bapista (Geosyntec PM) ~~for~~ morning check-in. Begin sampling. For details, refer to attached 'monitoring well sampling' forms.
1215-1230: Lunch
1540: off site. Call Rebecca Bapista for end-of-day check-in.
1630: at office. Park samples for shipping.
1730: end of day.

Plans/Future Activities

08/01/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: CCSY
Project No.: TR0292
Contractors: —

Date: 08/02/11
Task No.: 37

Work Performed

Well Installation: _____
Soil Borings: _____
DPT: _____
Well Inventory: _____
Other: _____

Sampling Soil: _____
Sampling SW/Sediment: _____
Sampling Monitor Wells: x (GW)
Sampling Hazardous Waste: _____
Sampling Drums: _____

Observations/Issues of Concern

0730: Joe Bartlett and Dave Steemans at office. Calibrate YSI and turbidimeter (CCV, ICV). Load vehicle. Travel to site. Text Rebecca Dapat (Geosyntec PM) for morning check-in.
0900: on site. Begin sampling. For details, refer to attached 'monitoring well sampling' forms.
1215-1230: Lunch.
1415: End sampling. Off site.
1500: at office. Package samples for shipping.
1700: end of day.

Plans/Future Activities

[signature] 08/02/11
Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 CSTCP PRD Project #: TR0272 Field Personnel: JOE BARTLETT

Water Quality Meter - Model/Serial #: YSI 556 MPS / 08A100738 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		08/01/11	0758	23.13	8.562	8.42 / 8.56	60.8 / 100.0	(P) F
(CAL) (ICV) (CCV)		08/02/11	0740	23.10	8.562	9.16 / 8.56	107.0 / 100.0	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		08/01/11	0815	1.413	~~1000618~~ 8705	02-2012	1.483 / 1.413	(P) F
(CAL) (ICV) (CCV)		08/02/11	0800	"	"	"	1.378 /	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		08/01/11	0800	4.0	2002034	01-2012	3.91 / 4.00	(P) F
(CAL) (ICV) CCV		↓	↓	7.0	2002012	01-2012	6.99 / 7.00	(P) F
(CAL) (ICV) CCV				10.0	~~1000355~~	~~03-2011~~	10.01 / 10.00	(P) F
(CAL) (ICV) CCV			0745		2101326	07-2012	4.81 / 4.00	P (F)
(CAL) (ICV) CCV		08/02/11	↓	same	as above		6.155 / 7.0	P (F)
(CAL) (ICV) CCV							9.58 / 10.00	P (F)

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		08/01/11	0820	240 @ 25	2244	03-2015	241.6 / 240.0	(P) F
(CAL) (ICV) (CCV)		08/02/11		"	"	"	242.0 /	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	08/01/11	10.9	(P) F
(CAL) (ICV) (CCV)	08/02/11	10.8	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	08/01/11	19.9	(P) F
(CAL) (ICV) (CCV)	08/02/11	19.3	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	08/01/11	99	(P) F
(CAL) (ICV) (CCV)	08/02/11	100	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	08/01/11	808	(P) F
(CAL) (ICV) (CCV)	08/02/11	795	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

Comments: Fail DO CCV
Fail pH 4, 7, 10 CCV

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: Joe BRATSCH

Water Quality Meter - Model/Serial #: YSI 556 MPS / 08A100738 Turbidimeter - Model/Serial # HACH 2100Q / 110200075574

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) ICV (CCV)		08/02/11	1600	25.40	8.203	8.84	107.8	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) ICV (CCV)		08/02/11	1615	1.413	8705	02-2012	1.460	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) ICV (CCV)		08/02/11	1605	4.0	2002034	01-2012	3.93	(P) F
(CAL) ICV (CCV)		↓	↓	7.0	2002012	01-2012	5.20	(P) (F)
(CAL) ICV (CCV)		↓	↓	10.0	2101326	07-2012	8.16	(P) (F)
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) ICV (CCV)		08/02/11	1628	240@25	2244	03-2015	242.6	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) ICV (CCV)	08/02/11	11.0	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) ICV (CCV)	08/02/11	22.0	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) ICV (CCV)	08/02/11	102	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) ICV (CCV)	08/02/11	796	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

Comments: Fail DO, pH 7, pH 10 CCV

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification
Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: D. Sizemore

Water Quality Meter - Model/Serial #: MF YSI 556 05D2373 Turbidimeter - Model/Serial # Hach 2100Q 10010C06392

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		8/1/11	845	22.81	8.611	8.09-8.61	100.2	P F
CAL ICV CCV		8/2/11	815	22.92	8.595	8.57-8.60	100.1	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
							Acceptance Criteria: +/- 5%	
CAL ICV CCV		8/1/11	912	1.413	8705	2/12	1.203-1.413	P F
CAL ICV CCV		8/2/11	0806	"	"	"	1.409-1.413	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
							Acceptance Criteria: +/-0.2 SU	
CAL ICV CCV		8/1/11	659	4	2102011	1/13	4.23-4.00	P F
CAL ICV CCV		8/1/11	851	7	2101037	12/12	6.74-7.00	P F
CAL ICV CCV		8/1/11	903	10	2101326	7/12	10.64-10.00	P F
CAL ICV CCV		8/2/11	823	4			4.14-4.00	P F
CAL ICV CCV		8/2/11	820	7	SAME		7.53-7.00	P F
CAL ICV CCV		8/2/11	825	10			10.16-10.10	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
							Geosyntec Acceptance Criteria: +/- 5%	
CAL ICV CCV		8/1/11	915	240@25°	2244	3/15	192.3-240.0	P F
CAL ICV CCV		8/2/11	826	"	"	"	195.0-240.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	8/1/11	10.6-10.0	P F
CAL ICV CCV	8/2/11	10.1-10.0	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	8/1/11	20.0	P F
CAL ICV CCV	8/2/11	18.0-20	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

Comments: Failed pH 7 CCV & ORP CCV
Failed Turb. CCV

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: D. Sizemore

Water Quality Meter - Model/Serial #: YSI 556 05D2373 Turbidimeter - Model/Serial # Hach 2100Q 10010C06892

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV (CCV)		8/2/11	1510	25.24	8.233	7.50	93.2	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV (CCV)		8/2/11	1711	1.413	8705	2/12	1.421	(P) F
CAL ICV (CCV)								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV (CCV)		8/2/11	1717	4	210211	11/13	3.52	P (F)
CAL ICV (CCV)		8/2/11	1713	7	210137	12/12	7.14	(P) F
CAL ICV (CCV)		8/2/11	1720	10	210326	7/12	11.52	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV (CCV)		8/2/11	1729	240@25°	2244	3/15	198.9	P (F)
CAL ICV (CCV)								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 1.0 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV (CCV)	8/2/11	10.4	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV (CCV)	8/2/11	21.0	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

Comments: Failed DO CCV; pH4; pH10 CCV and ORP CCV

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Failed: DO, pH 9/7/10 CCV

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/01/11 Sampled By: JOE BARRETT

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1032 Time @ End of Purging: 1052 Total Purging Time: 20 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 5.99 Ft. BTOC Total Well Depth: 42 Ft. BGS Reference: TOC Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35-42 Ft. BGS.

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1032	Start	Begin Purge								clear	
1045	1.3	27.06	6.98	2.706	7.25	1.39	-201.3	0.49	1.764	"	
1047	1.5	26.58	7.02	2.740	5.77	1.41	-200.3	0.45	1.781	"	
1049	1.7	26.64	7.00	2.737	3.51	1.41	-209.1	0.40	1.779	"	
1052	2.0	26.61	6.98	2.738	5.59	1.41	-207.5	0.39	1.780	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-201108 01 Time Collected: 1052 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals.

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 52 + 0.25 = 0.39 gal

FD (VOC): LC34-FD-201108 01 - 03

QC (VOC): LC34-RW0007-038.5-201108 01 - D

* only filled 2½ vials for VOC & nBA

Failed: DO, pH j4,7,10 CCV

Monitori.. Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/01/11 Sampled By: Joe Bartlett

Station (Well ID): IW0002I Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1352 Time @ End of Purging: 1408 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 027.5 ft. (BTOC)

Water Level: 6.21 ft. BTOC Total Well Depth: 30 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 4.89 gal.

Screen: 25-30 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1352	Start	Begin Purge								clear	
1402	1.0	27.09	6.74	1.889	9.08	0.95	-131.0	1.07	1.230	"	
1404	1.2	27.09	6.74	1.917	6.67	0.97	-135.9	0.99	1.248	"	
1406	1.4	26.96	6.75	1.936	6.01	0.98	-140.2	0.94	1.261	"	
1408	1.6	26.97	6.57	1.945	4.30	0.98	-143.1	0.91	1.265	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW0002I-027.5-20110801

Sample ID: _____ Time Collected: 1408 Comments: VOC & NBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 40 + 0.25 = 0.31 gal

FD(VFA): LC34-FD-20110801-012

QC(VOC): LC34-IW0002I-027.5-20110801-D

Failed: DO ; pH 4,7,10 CCV

Monitori Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/01/11 Sampled By: Jon BARTLETT

Station (Well ID): IW0002D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1257 Time @ End of Purging: 1315 Total Purging Time: 18 min Depth of Pump or Intake Tubing: 037.5 ft. (BTOC)

Water Level: 6.78 ft. BTOC Total Well Depth: 40 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 0.52 gal.

screen: 35 - 40 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1257	Start	Begin Purge								clear	
1307	1.0	27.57	6.99	3.646	5.13	1.91	-199.9	0.89	2.369	"	
1309	1.4	26.93	6.79	3.648	10.9	1.91	-201.4	0.83	2.371	"	
1313	1.6	26.83	6.83	3.655	8.07	1.92	-207.1	0.78	2.376	"	
1315	1.8	26.87	6.83	3.657	4.71	1.92	-211.0	0.76	2.378	"	

only 2 1/2 vials filled for VOC

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW0002D-037.5-20110801

Sample ID: _____ Time Collected: 1315 Comments: VOC's nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼ in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 50 + 0.315 = 0.52 gal

QC(VFA): LC34-IW0002D-037.5-20110801-D

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/1/14 Sampled By: D. Sizemore

Station (Well ID): BW0001A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump II Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Solinst

Time @ Start of Purging: 1205 Time @ End of Purging: 1226 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.65 Total Well Depth: 20 ft BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.52 gal

screen: 23-26 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1205	Start	26.82	7.61	1.156	3.59	.57	-37.1	.53	.75	Clear	—
1212	.5	26.84	7.63	1.158	2.99	.57	-35.8	.52	.75	"	—
1219	1.0	26.86	7.67	1.157	1.92	.57	-30.6	.43	.75	"	—
1226	1.5	26.85	7.67	1.157	2.03	.57	-30.9	.41	.75	"	—
		Failed: pH, ORP, and turbidity CCV									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001A-024.5-20110801

Sample ID: _____ Time Collected: 1226 Comments: only 2 40mL Vials filled VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

~~When using 3/16-in. ID tubing EV= ((0.041)-(0.035x tubing length))+(flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 36 + 0.25 = 0.35 gal

FD(VOC): LC34-FD-20110801-04 only 2 40mL Vials

Monitori Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/1/11 Sampled By: D. Sizemore

Station (Well ID): BW0001B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump II Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Solinst

Time @ Start of Purging: 1116 Time @ End of Purging: 1137 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.52 Total Well Depth: 33 Ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.66 gal.

Screen: 30-33 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1116	Start	26.43	7.35	1.809	3.87	.91	-44.4	.40	1.18	Clear	—
1123	.5	26.40	7.58	1.817	2.95	.92	-46.1	.33	1.18	"	—
1130	1.0	26.35	7.60	1.816	3.23	.92	-46.2	.29	1.18	"	—
1137	1.5	26.37	7.62	1.814	6.49	.91	-48.2	.28	1.17	"	—
		Failed:	pH 7,	ORP and	turbidity	CCV.					

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001B-031.5-20110802 Time Collected: 1137 Comments: VOC & uBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals.

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)=_____ gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 X 43 + 0.25 = 0.36 gal

QC (Br & I): LC34-BW0001B-031.5-20110802-D

Monitoring Well Sampling

Site: LC-34 Project No.: TR0272 Task: 37 Date: 8/11/11 Sampled By: D. Sizemore

Station (Well ID): BW0001C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump II Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Solinst

Time @ Start of Purging: 1019 Time @ End of Purging: 1054 Total Purging Time: 35 min. Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.11 Total Well Depth: 40 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.80 gal.

Screen: 37-40 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1019	Start	26.31	7.59	2.152	1.72	1.10	-53.6	.39	1.40	Clear	—
1026	.5	26.41	6.99	2.147	1.23	1.09	-52.3	.38	1.39	Clear	—
1033	1.0	26.43	7.87	2.138	1.16	1.09	-52.6	.36	1.39	"	—
1040	1.5	26.34	7.83	2.142	1.23	1.05	-52.4	.25	1.39	"	—
1047	2.0	26.35	7.81	2.139	1.29	1.05	-52.4	.25	1.38	"	—
1054	2.5	26.25	7.81	2.139	1.25	1.04	-52.7	.23	1.38	"	—
		Failed: pH, ORP, and turbidity CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001C-038.5-201108 01 Time Collected: 1054 Comments: VOC & uBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals.

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 50 + 0.25 = 0.38 gal

FD (TOC): LC34-FD-201108 01-02

Monitori Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/1/11 Sampled By: D. Sizemore

Station (Well ID): BW0001D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump II Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Solinst

Time @ Start of Purging: 1256 Time @ End of Purging: 1324 Total Purging Time: 28 min. Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 5.62 Total Well Depth: 47 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.94 gal.

screen: 44 - 47 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Appearance ~~Color~~	Comments
1256	Start	27.31	7.65	1.906	74.6	16.3	-40.4	1.23	1.24	Cloudy	
1303	.5	27.07	7.66	1.998	41.1	1.00	-32.5	.46	1.29	"	
1310	1.0	27.02	7.67	1.999	9.31	1.01	-33.1	.33	1.30	Clear	
1317	1.5	27.03	7.65	2.001	4.0	1.02	-32.9	.31	1.31	"	
1324	2.0	26.99	7.64	2.002	4.2	1.03	-37.1	.29	1.32	"	
		Failed: pH 7, ORP and Turbidity CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001D-045.5-20110801 Time Collected: 1324 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals.

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 57 + 0.25 = 0.40 gal.

FD(VOC): LC34-FD-20110801 - #05

QC(Alkalinity): LC34-BW0001D-045.5-20110801

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/2/11 Sampled By: D. Sizemore

Station (Well ID): BW0002A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1042 Time @ End of Purging: 1103 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 6.04 Total Well Depth: 26 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.52 gal

SCREEN: 23-26 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1042	Start	26.88	7.87	.916	7.29	.45	-21.7	1.13	.60	Clear	—
1049	.5	26.38	7.90	1.000	7.28	.49	-15.7	.50	.65	"	—
1056	1.0	26.35	7.85	.998	7.70	.49	-13.3	.62	.65	"	—
1103	1.5	26.36	7.87	.999	4.74	.49	-11.0	.65	.65	"	—
		Failed: DO, pH4, pH10, and ORP ccv.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002A-024.5-20110802

Sample ID: _____ Time Collected: 1103 Comments: VOC & WBA, VFA, Br & I, TOC, MEE,

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 X 36 + 0.25 = 0.34 gal

FD (Br & I): LC34-FD-20110802-05

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/2/11 Sampled By: J. Sizemore

Station (Well ID): BW0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ~~Solinst~~ Durham

Time @ Start of Purging: 1003 Time @ End of Purging: 1024 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 6.11 Total Well Depth: 33 Ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.66 gal.

screen: 30-33 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1003	Start	23.21	7.45	1.160	31.5	.62	-7.9	2.15	.81	Clear	—
1010	.5	26.64	7.43	1.601	10.7	.80	-11.1	.99	1.04	4	—
1017	1.0	26.46	7.46	1.608	9.8	.81	-12.9	1.07	1.05	4	—
1024	1.5	26.50	7.50	1.605	9.7	.80	-13.0	1.04	1.04	4	—
		Failed: DO, pH 4, pH 10, and ORP CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002B-031.5-20110802

Sample ID: _____ Time Collected: 1024 Comments: VOC & MBA, VFA, Br & I, TOC, MEE

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 43 + 0.25 = 0.36 gal

FD(TOC): LC34-FD-20110802-003

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/2/11 Sampled By: D. Sizemore

Station (Well ID): BW00026 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump II Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Solinst

Time @ Start of Purging: 0916 Time @ End of Purging: 0937 Total Purging Time: 21 min. Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 6.41 Total Well Depth: 40 Ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.80 gal

Screen: 37-40 Ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
916	Start	26.30	7.16	2.704	3.77	1.39	-19.7	1.16	1.76	Clear	—
923	.5	20.21	7.18	2.689	3.79	1.38	-15.9	1.04	1.75	"	—
930	1.0	26.20	7.20	2.615	3.66	1.38	-15.6	1.00	1.77	"	—
937	1.5	26.23	7.24	2.617	4.25	1.37	-15.3	.97	1.77	"	—
		Failed: DO, pH 4, pH 10, and ORP CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00026-0805-20110802 Time Collected: 937 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____ gal

0.0026 x 50 + 0.25 = 0.38 gal.

FD (Anions): LC34-FD-20110802-0801

Monitori. Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/2/11 Sampled By: D. Sizemore

Station (Well ID): BW00020 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1120 Time @ End of Purging: 1141 Total Purging Time: 21 min. Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 6.60 Total Well Depth: 47 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.94 gal.

screen: 44 - 47 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1120	Start	27.73	7.69	2.294		1.17	-19.3	2.58	1.49	Clear	
1127	.5	~~26.36~~ 26.36	7.68	2.365	7.41	1.21	-30.3	.40	1.19	"	
1134	1.0	26.34	7.68	2.370	1.76	1.21	-21.7	.41	1.20	"	
1141	1.5	26.37	7.68	2.371	1.23	1.20	-12.8	.24	1.21	"	
		Failed: DO, pH4, pH10, and ORP. CCV									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW00020-045.5-20110802

Sample ID: _____ Time Collected: 1141 Comments: VOC & HBA, VFA, Br & I, TOC, MEE

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal.~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 57 + 0.25 = 0.40 gal

QC(VOC): LC34-BW00020-045.5-20110802-D

LC34-FD-20110802-00 (Br & I)

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/02/11 Sampled By: Joe BARTLETT

Station (Well ID): BW0003A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Ruskam

Time @ Start of Purging: 1256 Time @ End of Purging: 1317 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.92 ft. BTOC Total Well Depth: 26 ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen: 23-26 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1256	Start	Begin Purge								clear	
1306	1.0	25.98	7.73	1.303	6.13	0.65	-146.6	2.57	0.847	"	
1309	1.3	25.85	7.85	1.300	7.05	0.65	-152.5	2.42	0.844	"	
1315	1.9	25.79	7.87	1.300	2.93	0.65	-168.4	2.14	0.845	"	
1317	2.1	25.83	7.86	1.301	2.92	0.65	-170.1	2.13	0.846	"	
		Fail pH 7, pH 10 CCV					Fail DO CCV				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003A-024.5-20110802 Time Collected: 1317 Comments: VOC & VBA, VFA, Br & I, TOC, MEE

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)=_____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

FD (MEE): LC34-FD-20110802-07

0.0026 x 36 + 0.25 = 0.34 gal

Monitori Vell Sampling

Site: LL34 Project No.: TR0272 Task: 37 Date: 08/02/11 Sampled By: Joe Bartlett

Station (Well ID): BW0003B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) V Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Burlam

Time @ Start of Purging: 1206 Time @ End of Purging: 1222 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 6.12 ft. BTOC Total Well Depth: 33 ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.66 gal

screen: 30-33 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1206	Start	Begin Purge								clear	
1216	1.0	25.95	7.55	1.800	1.17	0.91	-138.6	3.66	1.172	"	
1218	1.2	25.83	7.57	1.811	1.11	0.92	-149.5	2.75	1.178	"	
1220	1.4	25.83	7.55	1.818	0.92	0.92	-155.5	2.54	1.182	"	
1222	1.6	25.78	7.53	1.828	0.95	0.92	-166.7	2.35	1.189	"	
		Foul	pH 7, pH 10 CCV					for 180 CCV			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LL34-BW0003B-031.5-20110802 Time Collected: 1222 Comments: VOC 8nBA, VFA, Br & I, TOC, MEE

~~When using 3/16-in. ID tubing EV=((0.041)-(0.035x tubing length))+(flow thru vol.)=_____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 43 + 0.25 = 0.36 gal

QC (TOC): LL34-BW0003B-031.5-20110802-D

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/02/11 Sampled By: JOE BARTLETT

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1043 Time @ End of Purging: 1100 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 6.05 Ft. BTOC Total Well Depth: 40 Ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.8 gal

Screen: 37-40 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1043	Start	Begin Purge								clear	
1053	1.0	26.08	6.85	3.096	18.3	1.61	-250.7	1.43	2.012	"	
1055	1.2	26.07	6.88	3.090	3.62	1.61	-256.9	1.38	2.008	"	
1057	1.4	26.15	6.87	3.073	4.07	1.60	-264.1	1.32	1.999	"	
1100	1.7	26.21	6.88	3.067	3.20	1.59	-275.7	1.26	1.993	"	
			Fail pH7	pH10				Fail DO	CCV		
			CCV								

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-038.5-20110802 Time Collected: 1100 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)=_____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 50 + 0.25 = 0.38 gal

FD (Alkalinity): LC34-FD-20110802-04

QC (Sulfide): LC34-BW0003C-038.5-20110802-D

Monitori Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/02/11 Sampled By: Joe BARTLETT

Station (Well ID): BW00030 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) V Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1340 Time @ End of Purging: 1356 Total Purging Time: 16 min Depth of Pump or Intake Tubing: ~45.5 ft. (BTOC)

Water Level: 10.08 Ft. BTOC Total Well Depth: 47 Ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen: 44-47 Ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1340	Start	Begin Purge								Clear	
1350	1.0	27.10	6.82	2.977	7.41	1.54	-250.9	1.54	1.939	"	
1352	1.2	27.05	6.82	2.980	6.71	1.54	-256.4	1.37	1938	"	
1354	1.4	27.22	6.82	2.984	5.25	1.55	-259.6	1.32	1.941	"	
1356	1.6	27.10	6.95	2.983	5.04	1.55	-268.1	1.24	1.940	"	
		Fail pH 7, pH 10 CCV					Fail DO	CCV			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW00030-045.5-201108 02

Sample ID: _____ Time Collected: 1356 Comments: VOC & nBA, VFA, Br & I, TOC, MEE

~~When using 3/16-in. ID tubing EV=((0.041)(0.035x tubing length))+(flow thru vol.)=~~ _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 57 + 0.25 = 0.40 gal

FD (VFA): LC34-FD-201108 02-08

Failed: DO, pH; 4, 7, 10 CCV

Monitori.. Well Sampling

Site: LC34 Project No.: 7R0272 Task: 37 Date: 08/01/11 Sampled By: Joe BARTLETT

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 0937 Time @ End of Purging: 0954 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 5.89 Ft. BTOC Total Well Depth: 57 Ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0937	Start	Begin Purge								Clear	
0947	1.0	26.35	7.30	2.524	3.93	1.30	-199.2	0.32	1.641	"	
0949	1.2	26.31	7.31	2.527	3.92	1.30	-207.8	0.29	1.643	"	
0951	1.4	26.23	7.32	2.529	4.14	1.30	-217.9	0.27	1.644	"	
0954	1.7	26.25	7.32	2.527	3.27	1.30	-226.0	0.25	1.643	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-052.0-20110801

Sample ID: _____ Time Collected: 0954 Comments: VOC, NSA VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length)) + (flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026x67 + 0.25 = 0.42 gal

FD(VOC): LC34-FD-20110801-01

QC(Anions): LC34-RW0008-052.0-20110801-D

Forked: DO, pH; 4, 7, 10 CCV

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/01/11 Sampled By: Joe BARTLETT

Station (Well ID): IW0002D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1125 Time @ End of Purging: 1142 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 6.61 ft. BTOC Total Well Depth: 55 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 8.97 gal

Screen: 50-55 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1125	Start	Begin Purge								clear	
1135	1.0	26.60	7.16	2.902	17.5	1.50	-243.1	0.61	1.887	"	
1137	1.2	26.52	7.13	2.900	15.8	1.50	-244.0	0.57	1.884	"	
1140	1.5	26.56	7.13	2.899	13.4	1.50	-247.2	0.54	1.883	"	
1142	1.7	26.54	7.11	2.900	14.8	1.50	-249.9	0.53	1.885	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW0002D1-052.5-20110801

Sample ID: _____ Time Collected: 1142 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼ in. ID tubing EV= (0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 65 + 0.25 = 0.34 gal.

QC(MEE): LC34-IW0002D1-052.5-20110801-D

QC(Diss. Metals): LC34-IW0002D1-052.5-20110801-D

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/1/11 Sampled By: D. Sizemore

Station (Well ID): BW 00018 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1400 Time @ End of Purging: 1421 Total Purging Time: 21 min. Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 5.91 Total Well Depth: 54 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.08 gal.

screen: 51-54 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1400	Start	27.36	7.29	1.984	~~22.4~~ 22.9	1.00	-31.4	1.53	1.28	Clear	
1407	0.5	27.39	7.29	1.986	12.3	1.00	-31.2	1.41	1.25	"	
1414	1.0	27.40	7.31	1.988	6.4	1.01	-31.2	1.29	1.25	"	
1421	1.5	27.41	7.32	1.988	4.5	1.01	-32.0	1.25	1.25	"	
		Failed: pH 7, ORP, turbidity CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00018-052.5-201108 01 Time Collected: 1421 Comments: VOC & NBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)=_____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 64 + 0.25 = 0.42 gal

FD (Sulfide): LC34-FD-201108 01 - #07

Monitori. Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 8/1/14 Sampled By: D. Sizemore

Station (Well ID): BW0001F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham.

Time @ Start of Purging: 1448 Time @ End of Purging: 1509 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 6.52 Total Well Depth: 61 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.22 gal.

Screen: 58-61 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1449	Start	26.64	7.81	2.371	3.54	1.22	-4.7	1.45	1.31	Clear	—
1455	.5	25.96	7.79	2.046	3.45	1.04	-42.6	.92	1.33	"	—
1502	1.0	25.99	7.79	2.046	4.02	1.05	-43.0	.92	1.32	"	—
1509	1.5	25.95	7.80	2.047	4.19	1.05	-43.2	.89	1.32	"	—
		Failed: pH 7, ORP, and turbidity CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001F-059.5-201108 DL

Sample ID: _____ Time Collected: 1509 Comments: VOC & nBA, VFA, Br & I, TOC, SulAds, MEE, Anions, Alkalinity, Dissolved Metals

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 71 + 0.25 = 0.44 gal.

FD(Br&I): LC34-FD-201108DL09

Monitoring Well Sampling

Site: LG34 Project No.: JR0272 Task: 37 Date: 8/2/11 Sampled By: D. Sizemore

Station (Well ID): BW00028 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham.

Time @ Start of Purging: 1201 Time @ End of Purging: 1229 Total Purging Time: 28 min. Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 6.30 Total Well Depth: 54 Ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.08 gal.

Screen: 51-54 Ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	~~Color~~ appearance	Comments
1201	Start	26.63	7.64	1.965	———	1.00	-6.6	.75	1.28	Cloudy	
1208	.5	26.97	7.59	2.036	67.9	1.03	0.2	.44	1.33	Clear	
1215	1.0	26.92	7.58	2.040	14.5	1.04	-3.3	.33	1.33	"	
1222	1.5	26.85	7.60	2.041	13.9	1.05	-3.3	.34	1.34	"	
1229	2.0	26.91	7.61	2.042	12.9	1.05	-2.9	.33	1.34	"	
		Factor = DO, pH 4, pH 10, and ORP CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LG34-BW00028-052.5-20110802 Time Collected: _____ Comments: VOCs, nBA, VFA, Br & I, TOC, MEE

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal.~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 64 +0.25 = 0.42 gal.

Monitori Vell Sampling

Site: LC34 Project No.: TRW272 Task: 37 Date: 8/2/11 Sampled By: D. Sizemore

Station (Well ID): BW0002F Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1250 Time @ End of Purging: 1311 Total Purging Time: 21 min. Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: ~~BT~~ 5.35 Total Well Depth: 61 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.22 gal.

Screen: 58-61 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1250	Start	25.84	7.74	2.111	16.6	1.08	-11.5	.80	1.38	Clear	
1257	.5	26.64	7.75	2.186	11.1	1.12	-13.7	.60	1.46	"	
1304	1.0	26.63	7.75	2.189	7.49	1.13	-16.2	.56	1.44	"	
1311	1.5	26.62	7.71	2.190	7.02	1.14	-15.5	.54	1.45	"	
		Failed: DO, pH 4, pH 10, and ORP cal.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002F-059.5-20110802

Sample ID: _____ Time Collected: 1311 Comments: VOC & uBA, VFA, Br & I, TOC, MEE

~~When using 3/16-in. ID tubing EV=((0.041)(0.035x tubing length))+(flow thru vol.)=_____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 61 + 0.25 = 0.41 gal.

QC(VOC): LC34-BW0002F-059.5-20110802-D

only two 40 mL Vials

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/02/11 Sampled By: JOE BARTLETT

Station (Well ID): BW00038 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1005 Time @ End of Purging: 1022 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 5.52 Ft. BTOC Total Well Depth: 54 Ft. BGS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.08 gal

screen: 51-54 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1005	Start	Begin Purge								clear	
1015	1.0	25.69	7.11	3.078	4.18	1.60	-232.9	1.22	1.999	"	
1017	1.2	25.67	7.10	3.048	2.37	1.58	-239.5	1.13	1.976	"	
1019	1.4	25.64	7.10	2.996	1.79	1.55	-250.5	1.05	1.945	"	
1022	1.7	25.62	7.10	2.943	1.23	1.52	-265.9	0.97	1.898	"	
		Fail pH 7, pH 10 cal						Fail DO	cal		

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00038-052.5-201108 02 Time Collected: 1022 Comments: VOC's nBA, VFA, Br & I, TOC, MEE.

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length)) + (flow thru vol.)= _____ gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 X 64 + 0.25 = 0.42 gal

Monitori Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/02/11 Sampled By: Joe Bartlett

Station (Well ID): BW0003F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) V Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 0927 Time @ End of Purging: 0943 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 6.08 ft. BTOC Total Well Depth: 61 ft. BLS Reference: TOC Well diameter: 3/4 in. Volume in well: 1.22 gal

Screen: 58-61 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0927	Start	Begin Purge								clear	
0937	1.0	25.87	7.68	2.781	4.74	1.44	-231.0	1.27	1.808	"	
0939	1.2	25.65	7.80	2.779	2.67	1.44	-237.8	1.26	1.806	"	
0941	1.4	25.59	7.84	2.779	1.47	1.44	-242.0	1.26	1.805	"	
0943	1.6	25.57	7.80	2.775	1.32	1.43	-247.8	1.25	1.803	"	
		Fail pH 7, pH 10 cal					Fail DO cal.				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0003F-059.5-20110802

Sample ID: _____ Time Collected: 0943 Comments: VOC & nBA, VFA, Br & I, TOC, MEE.

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026x71 +0.25 = 0.43 gal

FD(MEE): LC34-FD-20110802-02

Failed: DO, pH; 4, 7, 10 CCV

Monitori Vell Sampling

Site: LC34 Project No.: TR0272 Task: 37 Date: 08/01/11 Sampled By: Joe Bartlett

Station (Well ID): IW0076 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1444 Time @ End of Purging: 1501 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 075.0 ft. (BTOC)

Water Level: 6.68 ft. BTOC Total Well Depth: 80 ft. BLS Reference: TOC Well diameter: 2 in. Volume in well: 13.04 gal

screen: 70-80 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1444	Start	Begin Purge								Clear	
1455	1.1	26.08	7.78	2.516	32.6	1.29	-151.4	1.86	1.636	"	
1457	1.3	25.99	7.69	2.521	17.4	1.30	-149.4	1.81	1.639	"	
1459	1.5	25.95	7.78	2.525	14.9	1.30	-151.6	1.81	1.641	"	
1501	1.7	25.94	7.78	2.527	14.4	1.30	-152.0	1.79	1.643	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW0076-075.0-20110801

Sample ID: _____ Time Collected: 1501 Comments: VOC 9 nBA, VFA, Br & I, TOC, MEE, Dissolved Metals

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 × 90 + 0.25 = 0.46 gal

FD (Diss. Metals) = LC34-FD-20110801-02

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 2 (DMS)

Project: LC34
Project No.: TR0272
Contractors: EDS Glen Pennington; Sean Cripe

Date: 8/3/11
Task No.:

Work Performed

Well Installation:
Soil Borings:
DPT: DPT 332, 333, 334
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0725 DMS arrives site, EDS crew is onsite. DMS Conducts tailgate meeting w/ safety discussion. DMS and drilling set up for DPT macro core sampling.
811 Begin macro core sampling. Macro core Sampled by cutting a ½-1" strip from sampler Liner. Strip is removed and immediately Covered w/ aluminum Foil. Foil is punctured w/ a screwdriver. PID meter probe is inserted into foil / soil cavity made by screwdriver. PID responses are recorded on ~~boring~~ DMS boring logs. Cores ~~sampled~~ DMS Screened @ 1' intervals. Soil Samples for Lab analysis were Collected based on Lithology and PID responses.
1015 DPT 0332 Complete, set up for DPT 0333.
1023 ~~DPT 0333~~ DMS Begin DPT 0333.
1230 DPT 0333 Complete; begin setting up for DPT 0334.
1312 ~~DPT 0334 Complete~~ DMS Begin DPT 0334.
1543 DPT 0334 Complete; Begin Grouting DPTs. DMS Collects IDW Samples.

Plans/Future Activities

8/3/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34
Project No.: TR0272
Contractors: EDS

Date: 8/3/11
Task No.:

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

1630 Grouting DPTs complete, begin cleaning up & securing site. DMS inventory drums and securing Drum pallets.
1643 Drillers depart site; DMS continues securing drums and securing pallets; Packaging PID meter and finishing Daily notes.
1655 DMS departs site.

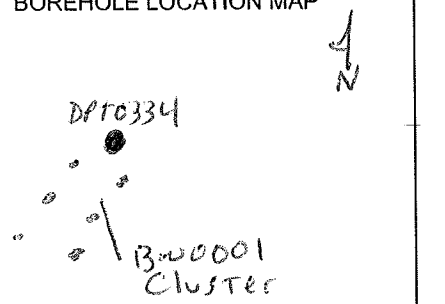
Plans/Future Activities

8/3/11
Signature/Date

Geosyntec consultants

BORING LOG

BOREHOLE LOCATION MAP



BORING NO.: DPT0334 PROJECT NO.: TR0272 PAGE 1 OF 1

SITE: LC34 DATE: 8/3/11

TOOLS AND METHOD: Macro BIT DIA: 2"

TOTAL DEPTH: 60' GROUNDWATER DEPTH: ~6.0'

DRILLING COMPANY: EDS RIG: Geoprobe

DRILLERS: Glen Pennington, Sean Cripe LOGGERS:

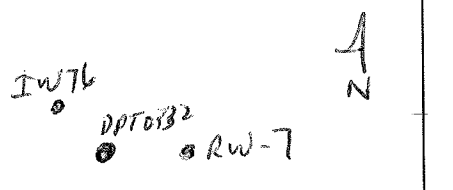
Start Time: 1312
Stop Time: 1543

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Gray Silty fine to medium SAND w/ fragmented shell (<5%)	Macro Sampler	26	8.4	
		27	0.9	
		28	1.3	
		29	11.5	
— Same w/ whole and fragmented shell (25%) below 30'		30		
		31	0.5	
	Macro Sampler	32	4.7	
		33	3.3	
		34	2.1	
		34.5	23.2	Grab Sample DPT-334-34.5 collected @ 1404
— Gray & black Silty medium SAND w/ whole and fragmented shell (45%)		35		
		36	5.3	
	Macro Sampler	37	0.4	Grab Sample DPT0334-37.0 collected @ 1413
		38	3.8	
		39	1.8	
		40		
		41	0.0	
	Macro Sampler	42	0.4	
		43	0.4	
— Gray Silty fine to medium SAND w/ very little shell (<1%) below 43.5'		44	18.5	
		45		
— Gray CLAY w/ fragmented shell (<5%) Med-High plasticity below 45'		46	10.7	Grab Sample DPT0334-45.5 collected @ 1457
	Macro Sampler	47	6.9	Grab sample DPT0334-47.0 collected @ 1507
		48	3.6	
— Gray Silty medium SAND w/ some fragmented shell (10-15%) below 49'		49	3.7	Grab Sample DPT0334-48.5 collected @ 1513
		50		
		51	7.6	
	Macro Sampler	52	0.3	
— Same		53	1.3	Grab Sample DPT0334-53.0 @ 1532
		54	0	
		55		
		56	0	
	Macro Sampler	57	0	
— Same		58	0	
		59	0	
		60		
				Boring terminated @ 60' and abandoned w/ Grout

Geosyntec consultants

BORING LOG

BOREHOLE LOCATION MAP



BORING NO.: DPT 0332 PROJECT NO.: TR0272 PAGE 1 OF 1

SITE: LC 34 DATE: 8/3/11

TOOLS AND METHOD: Macro Core Sampler BIT DIA: 2"

TOTAL DEPTH: 60' GROUNDWATER DEPTH: ~6.0'

DRILLING COMPANY: EDS RIG: Geoprobe

DRILLERS: Glen Pennington, Sean Crise LOGGERS: D Sizemore

Start Time: 811
Stop Time: 1015

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Gray fine to medium SAND w/ fragmented Shell (5%-10%)	Macro Sampler	26	0.5	
		27	PID ← 1.1	
		28	1.0	
		29	4.0	
		30		
		31	0.8	
	Macro Sampler	32	0.1	
		33	2.0	
- - Gray Silty fine SAND w/ fragmented shell (30%-40%) below 34'		34	1.8	
		35		
		36	2.2	
	Macro Sampler	37	0.1	- Grab Sample DPT 0332 37.0 collected @ 903
		38	2.4	
		39	16.6	
- - 40'-41' No recovery		40		
		41	44.1	
	Macro Sampler	42	17.2	
- - Gray Sandy Silty CLAY w/ Low Plasticity below 43'		43	21.3	- Grab Sample DPT 0332 43.5 @ 921
- - Same w/ medium to high Plasticity below 44'		44		
		45	4.0	- Grab Sample DPT 0332 45.0' @ 947
	Macro Sampler	46	7.9	
		47	3.9	
- - Gray Silty fine SAND w/ fragmented shell (~10%) below 48.5'		48	4.2	- Grab Sample DPT 0332 48.0 collected @ 956
		49		
	No Sample	50		
		51	0	
	Macro Sampler	52	0	
- - Same		53	0	- Grab Sample DPT 0332 53.0 Collected @ 1013
		54	0	
		55	0	
		56	0	
- - same	Macro Sampler	57	0	
		58	0	
		59	0	
		60	0	
Note: Photos for DPT 0332 mislabeled DPT 0232 in photos.				Boring terminated @ 60' and abandoned w/ grout

Geosyntec consultants

BORING LOG

BORING NO.: DPT 0333 PROJECT NO.: TR0272 PAGE 1 OF 1

SITE: LC34 DATE: 6/3/11

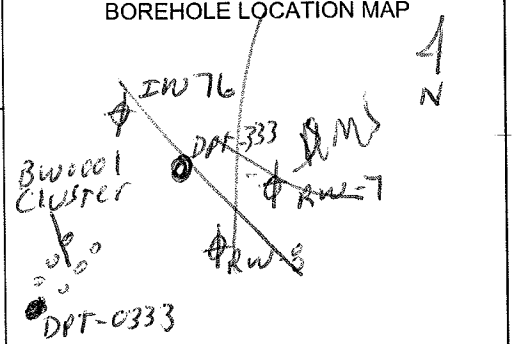
TOOLS AND METHOD: Macro Core Sampler BIT DIA: 2"

TOTAL DEPTH: 60' GROUNDWATER DEPTH: ~6'

DRILLING COMPANY: EDS RIG: Geoprobe

DRILLERS: Glen Pennington, Sean Cripe LOGGERS: D. Sizemore

BOREHOLE LOCATION MAP



Start Time: 1023
Stop Time: 1230

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Gray fine to medium SAND w/ some fragmented shell (<10%)	Macro Sampler	26	0	Check-in PID meter calibration w/ 100 ppm ISO Cal. Gas; Reading = 93.8
		27	0.1	
		28	0.2	
		29	0.3	
		30	1.2	
		31	0.6	
	Macro Sampler	32	0	
		33	0	
-- Same w/ whole and fragmented shell (30%-40%) below 35'		34	0.6	
		35		
		36	8.3	
	macro Sampler	37	11.4	-- Grab Sample DPT0333-37 Collected @ 1114
		38	1.1	
		39	9.0	
		40		
		41	6.5	
	Macro Sampler	42	9.3	
		43	10.6	
--44' Gray Silty fine SAND ~~clay~~		44	158.0	-- Grab Sample DPT0333-44.0 Collected @ 1128
--45' Gray CLAY w/ fragmented shell (<10%), Med plasticity		45		-- Grab Sample DPT0333-45.5 @ 1150
		46	3.3	
	macro Sampler	47	7.6	-- Grab sample DPT0333-47.0 @ 1155
		48	8.8	-- Grab Sample DPT0333-48.5 @ 1157
-- Gray shell flash from 49'-49.5'		49	2.1	
-- Gray Silty fine SAND w/ fragmented shell (<10%) below 49.5'		50	0	
		51	~~0~~ DPT	
	macro Sampler	52	0	
		53	0	-- Grab Sample DPT0333-53.0 Collected @ 1227
-- Same w/ whole & fragmented shell (40%) below 54'		54	0	
		55		
		56	0	
	Macro Sampler	57	0	
		58	0	
		59	0	
		60		
				Boring terminated @ 60' and abandoned w/ Grout

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0972 Field Personnel: Joe BARTLETT

Water Quality Meter - Model/Serial #: YSI 556 MPS / 09F100228 Turbidimeter - Model/Serial # HACH 2100Q / 10110C 006392

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL (ICV) CCV		08/12/11	0812	21.71	8.794	9.39/8.79	106.7/100.	P F
CAL ICV (CCV)		"	1303	29.44	7.638	8.03	112.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL (ICV) CCV		08/12/11	0827	1.413	8809	03-2012	1.376/1.413	P F
CAL ICV CCV		"	1319	"	"	"	0.924	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL (ICV) CCV		08/12/11	0815	4.0	2002034	01-2012	4.08/4.00	P F
CAL (ICV) CCV		↓	↓	7.0	2002012	01-2012	7.08/7.00	P F
CAL (ICV) CCV		↓	↓	10.0	2101328	07-2012	9.89/9.99	P F
CAL ICV (CCV)		↓	1305	↓	↓	↓	4.09	P F
CAL ICV (CCV)		↓	↓	"	"	"	6.98	P F
CAL ICV CCV		↓	↓	↓	↓	↓	9.91	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL (ICV) CCV		08/12/11	0833	240 @ 25	2244	03-2015	245.5/240.0	P F
CAL ICV CCV		"	1321	"	"	"	230.5	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	08/12/11	10.8	P F
CAL ICV (CCV)	"	13.4	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL (ICV) CCV	08/12/11	20.6	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	08/12/11	101	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL (ICV) CCV	08/12/11	802	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? (Yes) No

Comments: Fail turbidity CCV Fail Sp. Cond CCV
Fail pH 4 CCV Fail DO CCV

1. See Table FS 2200-2 on the back of this form
CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification
Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitori Well Sampling

Site: LC34 Project No.: JR0272 Task: 38 Date: 08/12/11 Sampled By: Joe Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): bespump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst.

Time @ Start of Purging: 1032 Time @ End of Purging: 1048 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: ~~47.07~~ 47.38 Ft. BTOC Total Well Depth: 57 Ft. BGS Reference: TOC Well diameter: 6 in. Volume in well: 83.7 gal.

7.69

Screen: 47 - 57 Ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1032	Start	27.02	8.36	2.829	33.3	1.40	-218.1	1.51	1.767	clear	
1042	1.0	26.35	8.23	2.822	16.6	1.42	-247.8	0.26	1.790	"	
1044	1.2	26.22	8.20	2.852	11.5	1.44	-254.3	0.36	1.812	"	
1046	1.4	26.16	8.14	2.863	9.28	1.45	-259.8	0.32	1.821	"	
1048	1.6	26.20	8.11	2.870	8.28	1.45	-261.9	0.26	1.823	"	
		Failed Turbidity, pH4, DO, Sp. Conductance Cal.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20110812 Time Collected: 1048 Comments: VOC + nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

~~When using 3/16 in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)=_____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 67 + 0.25 = 0.42 gal.

Monitori Well Sampling

Site: LC34 Project No.: TR0272 Task: 38 Date: 08/12/11 Sampled By: Joe Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~~0.1~~ gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: ~~1052~~ 1112 Time @ End of Purging: 1126 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: ~~35.23~~ 6.05 Ft. BTOL Total Well Depth: 42 Ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35 to 42 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
~~1052~~	Start	~~27.02~~	~~8.36~~	~~2.829~~	~~333~~	~~1.40~~	~~-218.1~~	~~1.51~~	~~1.767~~	clear	
1112	Start	26.59	8.56	1.777	12.8	0.87	-202.3	0.84	1.119	clear	
1122	1.0	26.49	8.42	1.791	8.40	0.87	-223.7	0.26	1.120	"	
1124	1.2	26.49	8.32	1.790	5.46	0.88	-235.2	0.22	1.133	"	
1126	1.4	26.48	8.21	1.829	4.81	0.90	-238.0	0.14	1.158	"	
		Failed	turbidity, pH4, DO, Sp. Conductance				CCV.				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20110812 Time Collected: 1126 Comments: VOC+nBA, VFA, Br & I, TOC, Sulfide; MEE, Anions; Alkalinity, Dissolved Metals

~~When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal~~

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 52 + 0.25 = 0.39 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: J. BARTLETT

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D2373 AK Turbidimeter - Model/Serial # HACH 2100Q / 10110C006392

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL (ICV) CCV		08/18/11	0817	21.94	8.761	8.35/8.76	95.3/100.0	P F
CAL ICV (CCV)		"	1329	23.16	8.546	8.52	99.6	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL (ICV) CCV		08/18/11	0824	1.413	88C09	03-2012	1.408/1.413	P F
CAL ICV (CCV)		"	1336	"	"	"	1.405	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL (ICV) CCV		08/18/11	0819	4.0	2002034	01-2012	4.01/4.00	P F
CAL ICV CCV				7.0	2002012	01-2012	7.09/7.00	P F
CAL ICV CCV				10.0	2101326	07-2012	9.83/9.87	P F
CAL ICV (CCV)			1350				4.02	P F
CAL ICV (CCV)				"	"	"	7.05	P F
CAL ICV (CCV)			↓				9.96	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL (ICV) CCV		08/18/11	0829	240 @ 25	2244	07-2015	236.6/240.0	P F
CAL ICV (CCV)		"	1339	"	"	"	236.6	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	08/18/11	9.38	P F
CAL ICV (CCV)	"	9.89	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	08/18/11	20.0	P F
CAL ICV (CCV)	"	20.8	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	08/18/11	101	P F
CAL ICV (CCV)	"	102	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL (ICV) CCV	08/18/11	800	P F
CAL ICV (CCV)	"	793	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 38 Date: 08/18/11 Sampled By: J. BARTLETT

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1003 Time @ End of Purging: 1018 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.31 ft. BTOC Total Well Depth: 42 ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35-42 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1003	Start	26.34	6.79	2.314	9.84	1.18	-237.2	1.23	1.502	clear	
1013	1.0	26.44	6.79	2.394	3.04	1.23	-251.2	0.69	1.556	"	
1015	1.2	26.45	6.80	2.393	3.26	1.23	-260.5	0.59	1.556	"	
1018	1.5	26.48	6.80	2.386	7.78	1.22	-279.9	0.49	1.551	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0007-0385-20110818

Sample ID: _____ Time Collected: 1018 Comments: VOC + 8260A, VFA, Br & I w/ Anions, TOC, Sulfide, MEE, Alkalinity, Dissolved Metals.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 52' + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LL34 Project No.: TR0272 Task: 38 Date: 08/18/11 Sampled By: J. BARTLETT

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1047 Time @ End of Purging: 1105 Total Purging Time: 18 mm Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 5.20 Ft. BTOC Total Well Depth: 57 Ft BLS Reference: TOC Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47 - 57 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1047	Start	26.58	7.05	2.651	22.8	1.36	-252.1	1.54	1.722	clear	
1059	1.2	26.39	6.97	2.638	3.51	1.36	-279.1	0.22	1.715	"	
1101	1.4	26.69	6.99	2.645	3.36	1.36	-246.2	0.24	1.719	"	
1103	1.6	26.71	6.98	2.655	3.46	1.37	-244.6	0.29	1.728	"	
1105	1.8	26.51	6.98	2.664	3.20	1.37	-246.2	0.34	1.732	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LL34-RW0008--052.0-20110818

Sample ID: _____ Time Collected: 1105 Comments: VOC + nBA, VFA, Br & I w/ Anions, TOC, Sulfide, MEE, Alkalinity, Dissolved Metals.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼ in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 67 + 0.25 = 0.35 gal.

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: J. Bartleh

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D2373 AK Turbidimeter - Model/Serial # HACH 2100Q / 10110C006399

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		08/24/11	0857	23.99	8.418	8.45/8.42	100.2/100.0	(P) F
(CAL) ICV (CCV)		"	1703	20.70	8.012	8.60	109.6	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		08/24/11	0903	1.413	8809	03-2012	1.380/1.413	(P) F
(CAL) ICV (CCV)		"	1709	"	"	"	1.420	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		08/24/11	0900	4.0	2002034	01-2012	4.06/4.00	(P) F
CAL (ICV) CCV		↓	↓	7.0	2002012	01-2012	7.02/7.00	(P) F
CAL (ICV) CCV		↓	↓	10.0	2101326	07-2012	10.02/10.00	(P) F
(CAL) ICV (CCV)			1706				3.91	(P) F
(CAL) ICV (CCV)		"	↓	"	"	"	6.97	(P) F
(CAL) ICV (CCV)							9.90	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		08/24/11	0905	240 @ 25	2244	03-2015	237.3/240.0	(P) F
(CAL) ICV (CCV)		"		"	"	"	236.3	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	08/24/11	9.18	(P) F
(CAL) ICV (CCV)	"	9.36	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	08/24/11	20.1	(P) F
(CAL) ICV (CCV)	"	20.1	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	08/24/11	96.1	(P) F
CAL ICV (CCV)	"	106	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	08/24/11	806	(P) F
(CAL) ICV (CCV)	"	802	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

Comments: Cal DO CCV

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification
Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: MR0272 Task: 38 Date: 08/24/11 Sampled By: J. Bartlett

Station (Well ID): RW 0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Greenpump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1053 Time @ End of Purging: 1108 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.45 M. BTOC Total Well Depth: 42 M. BLS Reference: TOC Well diameter: 6 in. Volume in well: 61.7 gal

Screen: 35 - 42 M. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1053	Start	26.76	6.78	2.665	3.72	1.37	-273.2	3.93	1.733	clear	
1103	1.0	26.82	6.76	2.718	1.21	1.40	-257.5	0.94	1.767	"	
1106	1.3	26.71	6.75	2.722	1.25	1.40	-260.6	0.76	1.770	"	
1108	1.5	26.73	6.75	2.728	1.77	1.41	-251.8	0.63	1.773	"	
		Failed DO	CCV								

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-0385-20110824 Time Collected: 1108 Comments: VOC + DBA, TOC, Meth, VFA, Sulfide, Br & I w/ Anions, Soluble Metals, Alkalinity

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 52 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 38 Date: 08/24/11 Sampled By: J. Bartlett

Station (Well ID): RW 0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1133 Time @ End of Purging: 1150 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 4.89 Ft BTOC Total Well Depth: 57 Ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1133	Start	26.87	7.12	2.682	162	1.38	-274.4	0.66	1.740	cloudy	
1143	1.0	27.38	7.01	2.716	3.07	1.40	-247.7	0.36	1.765	clear	
1146	1.3	27.36	7.01	2.720	2.78	1.40	-259.6	0.67	1.769	"	
1150	1.7	27.27	7.01	2.733	3.09	1.41	-249.7	0.52	1.777	"	
		Failed DO CCV.									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-052.0-20110824

Sample ID: _____ Time Collected: 1150 Comments: VOC inBA, TOC, MEE, VFA, Sulfide, Br & I w/ Anions, Soluble Metals, Alkalinity

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 67 + 0.25 = 0.35 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: J. BARTLETT

Water Quality Meter - Model/Serial #: YSI 556 MPS / 09F100228 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL (ICV) CCV		08/31/11	0821	23.91	8.434	8.79/8.43	104.2/100.0	P F
CAL ICV (CCV)		〃	1627	25.23	8.283	8.53	102.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL (ICV) CCV		08/31/11	0834	1.413	8809	03-2012	1.555/1.413	P F
CAL ICV (CCV)		〃	1638	〃	〃	〃	1.421	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL (ICV) CCV		08/31/11	0824	4.0	2002034	01-2012	3.88/4.00	P F
CAL ICV CCV			↓	7.0	2002012	01-2012	7.50/7.00	P F
CAL ICV CCV				10.0	2101326	07-2012	9.51/10.00	P F
CAL ICV CCV			1630				4.16	P F
CAL ICV CCV			↓	〃	〃	〃	6.83	P F
CAL ICV CCV							9.98	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL (ICV) CCV		08/31/11	0838	240 @ 25	2294	03-2015	235.4/240.0	P F
CAL ICV (CCV)		〃	1640	〃	〃	〃	233.4	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	08/30/11	10.7	P F
CAL ICV (CCV)	〃	10.9	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL (ICV) CCV	08/30/11	19.5	P F
CAL ICV (CCV)	〃	21.1	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	08/30/11	99.5	P F
CAL ICV (CCV)	〃	100	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL (ICV) CCV	08/31/11	789	P F
CAL ICV (CCV)	〃	813	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272 Task: 38 Date: 08/31/11 Sampled By: J. BARTELT

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo pump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1035 Time @ End of Purging: 1051 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 5.40 ft. BTOC Total Well Depth: 57 ft. BLS Reference: TOC Well diameter: 6 in. Volume in well: 83.7 gal

47 - 57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1035	Start	26.38	8.29	2.612	481	1.31	-283.8	0.59	1.655	cloudy	
1045	1.0	26.40	8.15	2.629	4.84	1.32	-292.7	0.24	1.665	clear	
1048	1.3	26.60	7.89	2.648	2.72	1.32	-288.5	0.12	1.666	"	
1051	1.6	26.59	7.80	2.648	2.46	1.32	-293.8	0.07	1.673	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34 - RW0008 - 052.0 - 20110831 Time Collected: 1051 Comments: VOC + NBA, TOC, MEE, VFA, Br + I w/ anions, Sulfide, Dissolved Metals, Alkalinity, Dic + VFA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 67 + 0.25 = 0.35 gal

Monitoring Well Sampling

Site: LC34 Project No.: 7R0272 Task: 38 Date: 08/31/11 Sampled By: J. BARTLETT

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Buchan

Time @ Start of Purging: 0954 Time @ End of Purging: 1009 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.44 ft BTOC Total Well Depth: 42 ft BLS Reference: TOC Well diameter: 6 in. Volume in well: 61.7 gal

BC-42 ft BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0954	Start	26.81	7.49	2.654	4.91	1.32	-284.6	0.85	1.671	clear	
1004	1.0	26.34	7.44	2.589	1.40	1.30	-295.7	0.23	1.639	"	
1006	1.2	26.49	7.40	2.585	0.88	1.29	-290.7	0.18	1.634	"	
1009	1.5	26.50	7.34	2.582	1.61	1.29	-290.3	0.17	1.632	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20110831 Time Collected: 1009 Comments: VOC+nBA, TOC, MEE, VFA, Br + NO_3 Anions, Sulfide, Diss'd Metals, Alkalinity, Diss + verA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 52 + 0.25 = 0.32 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LCS4 ESPCP RED Project #: TR0272A Field Personnel: J. Bartleh

Water Quality Meter - Model/Serial #: YSI 556 MPS / 09G101376 Turbidimeter - Model/Serial # HACH 2100Q / 10110C006399

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL (ICV) CCV		09/15/11	0916	23.63	8.450	8.24/8.45	103.6/106.0	P F
CAL ICV (CCV)		"	1559	27.56	7.898	7.72	100.2	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) ICV CCV		09/15/11	0929	1.413	8809	03-2012	1.389/1.413	P F
(CAL) ICV (CCV)		"	1605	"	"	"	1.438	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) ICV CCV		09/15/11	0918	4.0	2002039	01-2012	3.99/4.00	P F
CAL ICV CCV		↓	↓	7.0	2002012	01-2012	6.98/7.00	P F
CAL (ICV) CCV				10.0	2101326	03-2012	9.88/10.00	P F
CAL ICV (CCV)			1601				4.02	P F
CAL ICV CCV			↓	"	"	"	6.96	P F
CAL ICV CCV		↓					9.93	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) ICV CCV		09/15/11	0927	240.0 25	2244	03-2015	240.6/240.0	P F
CAL ICV (CCV)		"	1608	"	"	"	236.5	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 10%		
(CAL) ICV CCV	09/15/11	10.5	(P) F
CAL ICV (CCV)	"	9.84	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 8%		
(CAL) ICV CCV	09/15/11	20.4	(P) F
CAL ICV (CCV)	"	20.6	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 6.5%		
(CAL) ICV CCV	09/15/11	100	(P) F
CAL ICV (CCV)	"	101	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 5%		
(CAL) ICV CCV	09/15/11	810	(P) F
CAL (ICV) CCV	"	804	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: R0272A Task: 38 Date: 09/15/11 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: ~~Pump~~ Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Cropump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1229 Time @ End of Purging: 1245 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.16 ft. BTOC Total Well Depth: 42 ft BG Reference: TOC Well diameter: 6 in. Volume in well: 6.1.7 gal

35-42 ft BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1229	Start	27.30	7.19	2.568	15.7	1.32	-276.7	1.93	1.675	clear	
1239	1.0	27.26	7.05	2.663	0.97	1.37	-302.9	1.84	1.732	"	
1242	1.3	27.12	7.05	2.657	0.89	1.37	-312.2	1.66	1.727	"	
1245	1.6	27.10	7.06	2.656	0.82	1.37	-303.0	1.67	1.725	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-0385-20110915 Time Collected: 1245 Comments: VOC + MBA, MEE, VFA, TOC, Dissolved Metals, Alkalinity, Sulfide, BrO3 by Ion Chrom.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal~~

0.041 x 0.035 x 52 + 0.2 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: JR02904 Task: 38 Date: 09/15/11 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo pump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1307 Time @ End of Purging: 1323 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 52 ft. (BTOC)

Water Level: 6.87 ft. BTOC Total Well Depth: 57 ft. BGS Reference: TOC Well diameter: 6 in. Volume in well: 83.7 gal

47-57 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1307	Start	26.98	7.34	2.691	8.00	1.39	-291.0	1.11	1.749	clear	
1317	1.0	26.77	7.21	2.664	1.05	1.37	-316.5	1.04	1.731	"	
1320	1.3	26.67	7.21	2.667	1.15	1.37	-318.5	1.06	1.732	"	
1323	1.6	26.75	7.21	2.664	0.94	1.37	-320.3	1.03	1.732	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-0520-20110915

Sample ID: _____ Time Collected: 1323 Comments: VOC+NBA, MS2, VFA, TOC, Dissolved Metals, Alkalinity, Sulfide, Br-, I, Anions

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= _____gal~~

0.041 x 0.035 x 67 to 25 = 0.35 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0292A Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 550 MPS / 09H2823AF Turbidimeter - Model/Serial #: HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL (ICV) CCV		09/28/11	0855	25.37	8.203	7.39/8.20	90.0/100.0	P F
(CAL) ICV (CCV)		"	1430	27.60	7.884	7.79	98.7	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		09/28/11	0908	1.413	8809	03-2012	1.993/1.413	P F
(CAL) ICV (CCV)		"	1439	"	"	"	1.422	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL (ICV) CCV		09/28/11	0859	4.0	20020324	01-2012	4.05/4.00	P F
CAL (ICV) CCV		↓	↓	7.0	20020112	01-2012	7.03/7.00	P F
CAL (ICV) CCV		↓	↓	10.0	21013226	09-2012	10.07/10.00	P F
CAL ICV (CCV)			1433				4.13	P F
CAL ICV (CCV)			↓	"	"	"	6.89	P F
CAL ICV (CCV)		↓					9.92	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		09/28/11	0912	240 @ 25	2244	03-2015	241.2/240.0	P F
(CAL) ICV (CCV)		"	1441	"	"	"	238.1	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	09/28/11	10.5	P F
(CAL) ICV (CCV)	"	10.9	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	09/28/11	19.1	P F
(CAL) ICV (CCV)	"	21.0	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	09/28/11	106	P F
(CAL) ICV (CCV)	"	101	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	09/28/11	827	P F
(CAL) ICV (CCV)	"	780	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 09/28/11 Sampled By: J. Barnett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo pump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 1114 Time @ End of Purging: _____ Total Purging Time: 16 min. Depth of Pump or Intake Tubing: 52.0 ft. (BTOC)

Water Level: 5.11 ft. BTOC Total Well Depth: 57 ft. BLS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1114	Start	26.64	7.46	2.480	5.89	1.27	-284.7	2.14	1.610	clear	
1124	1.0	26.46	7.25	2.471	1.74	1.27	-272.8	0.68	1.606	"	
1127	1.3	26.44	7.27	2.470	1.17	1.27	-277.9	0.63	1.606	"	
1130	1.6	26.42	7.21	2.470	1.31	1.27	-274.8	0.59	1.605	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-052.0-20110928

Sample ID: _____ Time Collected: 1130 Comments: VOC + NDA, TOC, MEE, VFA, Sulfide, Br & I, Anions, Alkalinity, Dissolved Metals, BHC, VOA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal~~

0.041 x 0.035 x 67 + 0.25 = 0.35 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR02724 Task: 38 Date: 09/28/11 Sampled By: J. Barteld

Station (Well ID): RW0007 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 1030 Time @ End of Purging: 1047 Total Purging Time: 17 min. Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.24 Ft BTOC Total Well Depth: 42 Ft. BLS Reference: — Well diameter: 6 in. Volume in well: 61.7 gal

Screen: 35-42 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1030	Start	26.53	7.19	2.707	4.97	1.39	-210.3	2.04	1.748	clear	
1040	1.0	26.33	7.11	2.487	1.27	1.28	-277.0	0.82	1.617	"	
1044	1.4	26.45	7.11	2.461	1.00	1.26	-280.0	0.74	1.599	"	
1047	1.7	26.44	7.11	2.454	1.01	1.26	-284.3	0.66	1.595	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20110928 Time Collected: 1047 Comments: VOC+MBA, TOC, M2e / VFA, Br, Fe, Mn, SO4, Dis. VFA, Anion's, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

~~When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal~~

0.041 x 0.035 x 52 + 0.25 = 0.32 gal.

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 04K10614AF Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		10/13/11	0643	23.65	8.466	8.90/8.47	105.0/100.0	(P) F
(CAL) ICV (CCV)		"	1410	25.87	8.279	8.15	100.2	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/13/11	0052	1.413	B809	03-2012	1.423/1.413	(P) F
(CAL) ICV (CCV)		"	1416	"	"	"	1.401	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		10/13/11	0646	4.0	2002034	01-2012	4.14/4.00	(P) F
(CAL) (ICV) CCV		↓	↓	7.0	2002012	01-2012	6.95/7.00	(P) F
(CAL) (ICV) CCV		↓	↓	10.0	2101326	07-2012	9.98/10.00	(P) F
(CAL) ICV (CCV)		10/13/11	1412				4.11	(P) F
(CAL) ICV (CCV)		↓	↓	"	"	"	6.96	(P) F
(CAL) ICV (CCV)		↓	↓				10.01	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/13/11	0054	240 @ 25	2244	03-2015	242.9/240.0	(P) F
(CAL) ICV (CCV)		"	1418	"	"	"	238.2	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	10/13/11	10.7	(P) F
(CAL) ICV (CCV)	"	10.9	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	10/13/11	20.1	(P) F
(CAL) ICV (CCV)	"	20.8	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	10/13/11	97.8	(P) F
(CAL) ICV (CCV)	"	101	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	10/13/11	791	(P) F
(CAL) ICV (CCV)	"	784	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

6/23/2009

Monitoring Well Sampling

Site: LC34 Project No.: TR02724 Task: 38 Date: 10/13/11 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ~~X~~ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0929 Time @ End of Purging: 0944 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 3.43 ft. BTOC Total Well Depth: 42 ft. BGS Reference: - Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35-42 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0929	Start	25.86	7.17	2.494	3.32	1.28	-290.1	0.50	1.622	clear	
0939	1.0	25.75	7.16	2.485	3.17	1.28	-291.8	0.24	1.616	"	
0941	1.2	25.75	7.16	2.485	1.56	1.28	-305.7	0.21	1.616	"	
0944	1.5	25.73	7.15	2.486	2.33	1.28	-315.1	0.20	1.616	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20111013 Time Collected: 0944 Comments: VOC + NBA, MEE, VFA, TOC, Alk, Br & I, Anions, Sm Rdx, Soluble metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/13/11 Sampled By: J. Barthelt

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): ~~YSI 556 MPS~~ Geopump JB Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1007 Time @ End of Purging: 1022 Total Purging Time: 15 mm Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 2.36 Ft. BTOC Total Well Depth: 57 Ft. BGS Reference: ~ Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 Ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1007	Start	25.55	7.35	2.637	24.1	1.36	-303.5	1.31	1.713	clear	
1017	1.0	25.67	7.34	2.643	1.83	1.36	-298.4	0.20	1.718	"	
1019	1.2	25.70	7.35	2.643	1.44	1.36	-313.7	0.18	1.718	"	
1022	1.5	25.57	7.34	2.647	1.69	1.36	-304.8	0.21	1.720	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20111013 Time Collected: 1022 Comments: VOC+nBA, MeE, VFA, TOC, Alk, Br & I, Anions, sulfide, soluble metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 62 + 0.25 = 0.34 gal

Geosyntec consultants

DAILY FIELD REPORT

Project: 434
Project No.: TR02729
Contractors: -

Date: 10/25/11
Task No.: 3B

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: X
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0700: J. Bartlett and R. Donahue at Office. Calibrate Instruments (ICV.). Load vehicle, travel to site.
0900: Onsite. Begin sampling. For details, refer to monitoring well sampling forms.
1215-1245: Lunch.
1530: End sampling. Leave site.
1600: Pack samples for shipment. Complete COC.
1630: Calibrate Instruments (CCV) ~~end of day~~.
1700: End of day.

Plans/Future Activities

10/25/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC34
Project No.: TR0272-A
Contractors: —

Date: 10/26/11
Task No.: 38

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: X
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0715: J. Bartlett and R. Donahue at office. Calibrate instruments (ICV). Load vehicle. Travel to site.
0830: On site. Begin sampling. For details, refer to Monitoring well sampling forms.
1145 - 1215: Lunch.
1430: End sampling. Clean site, pour IDW into drum. Travel to office.
1500: At office, pack samples for shipment. Complete COC. Calibrate instruments (CCV).
1620: Ship samples via Fedex.
1700: End of day.

Plans/Future Activities

10/26/11
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: TR02724
Contractors: -

Date: 10/27/11
Task No.: 38

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: ✓
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0730: J. Bartlett at office. Calibrate instruments (ICV). Load vehicle, Travel to site.
- Back up new NASA backup.
- MPW ibrosparge electrical reading. (252074 kwh)

0915: at site. Begin sampling. For details, refer to monitoring well sampling forms.

1200-1230: Lunch

1230: Perform O&M on recirculation trailer.

1300: Pour IDW into drum on-site. Sampled IDW:
Sampled: LC34-IDW-185407-20111027 @ 1300
Sampled: LC34-IDW-183866-20111027 @ 1315

1330: Travel to AMF North site to drop IDW samples with mobile lab (KB Labs) for analysis.

1345: Drop IDW samples off with mobile lab. Travel to office.

1415: At office. Unload vehicle. Calibrate instruments (CCV). Fill out COC. Pack samples for shipment via Fedex.

Plans/Future Activities

10/27/11
Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 09J101399 Turbidimeter - Model/Serial # #4C14210002 / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL (ICV) CCV		10/25/11	0706	22.86	8.611	8.85 / 8.61	102.6 / 100.0	P F
(CAL) ICV (CCV)		"	1635	23.19	8.602	8.47	98.8	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/25/11	0717	1.413	8809	03-2012	1.512 / 1.413	P F
(CAL) ICV (CCV)		"	1647	"	"	"	1.427	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL (ICV) CCV		10/25/11	0710	4.0	2002034	01-2012	4.06 / 4.00	P F
CAL ICV CCV				7.0	2002012	01-2012	6.94 / 7.00	P F
CAL ICV CCV				10.0	2101326	07-2012	10.12 / 10.02	P F
CAL ICV (CCV)			1639				4.05	P F
CAL ICV (CCV)				"	"	"	6.85	P F
CAL ICV (CCV)							9.97	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL (CV) CCV		10/25/11	0720	229 @ 25	1061713	06-2012	215.2 / 229.0	P F
(CAL) ICV (CCV)		"	1648	"	"	"	228.1	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 10%		
(CAL) (ICV) CCV	10/25/11	10.6	P F
(CAL) ICV (CCV)	10/25/11	10.0	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 8%		
(CAL) (ICV) CCV	10/25/11	20.1	P F
(CAL) ICV (CCV)	"	22.7	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 6.5%		
(CAL) (ICV) CCV	10/25/11	101	P F
(CAL) ICV (CCV)	"	102	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
	Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV	10/25/11	806	P F
(CAL) ICV (CCV)	"	797	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: L039 Project #: TR0272A (8:30) Field Personnel: Rachel Donahue ~~Brad Wester~~

Water Quality Meter - Model/Serial #: KS1556 MPS / 06H2823 1F Turbidimeter - Model/Serial # Hach 2100 Q / 10100006396

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL (ICV) CCV		10/25/11	7:14	22.12	8.027	9.34→8.02	109.1→99.9	P F
CAL ICV (CCV)		10/25/11	10:42	23.92	8.133	5.65→8.02	67.1→99.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
							Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV		10/25/11	7:20	1.413	8809	03/12	1.36→1.413	P F
CAL ICV (CCV)	10/25/11	~~10/25/11~~	10:23	1.413	8809	03/12	1.42→1.413	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
							Acceptance Criteria: +/-0.2 SU	
(CAL) (ICV) CCV		10/25/11	7:16	4.0	2002034	01/12	3.96→4.0	P F
CAL (ICV) CCV		10/25/11	7:17	7.0	2002012	01/12	7.33→7.0	P F
CAL (ICV) CCV		10/25/11	7:19	10.0	2101326	07/12	10.09→10.02	P F
CAL ICV (CCV)		10/25/11	10:29	4.0	2002034	01/12	4.03→4.00	P F
CAL ICV (CCV)		10/25/11	10:30	7.0	2002012	01/12	6.94→7.00	P F
CAL ICV (CCV)		10/25/11	10:32	10.0	2101326	07/12	9.92→10.00	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/25/11	7:30	229	1067113	01/31/12	238→229	P F
CAL (ICV) CCV		10/25/11	10:35	229	1067113	01/31/12	228.5→229	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	10/25/11	9.89	P F
CAL ICV (CCV)	10/25/11	9.75	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	10/25/11	19.9	P F
CAL ICV (CCV)	10/25/11	20.2	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	10/25/11	99.99	P F
CAL ICV (CCV)	10/25/11	102	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL (ICV) CCV	10/25/11	797	P F
CAL ICV (CCV)	10/25/11	790	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 09B101399 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		10/26/11	0717	23.60	8.482	7.51 / 8.48	88.5 / 99.9	P F
CAL ICV (CCV)		"	1628	23.77	8.450	7.32	86.6	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/26/11	0726	1.413	8809	03-2012	1.437 / 1.413	(P) F
(CAL) ICV (CCV)		"	1622	"	"	"	1.361	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		10/26/11	0720	4.0	2002034	01-2012	4.10 / 4.00	(P) F
CAL ICV CCV			↓	7.0	2002012	01-2012	6.89 / 7.00	(P) F
CAL ICV CCV			↓	10.0	2101326	07-2012	10.15 / 10.00	(P) F
CAL ICV (CCV)			1615				4.10	(P) F
CAL ICV (CCV)			↓	"	"	"	6.91	(P) F
CAL ICV (CCV)			↓				9.97	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/26/11	0730	229 @ 25	1061713	06-2012	226.3 / 229.0	(P) F
(CAL) ICV (CCV)		"	1624	"	"	"	227.4	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	10/26/11	10.3	(P) F
CAL ICV (CCV)	"	10.8	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	10/26/11	20.3	(P) F
CAL ICV (CCV)	"	20.3	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) ICV (CCV)	10/26/11	100	(P) F
CAL ICV (CCV)	"	100	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	10/26/11	798	(P) F
CAL ICV (CCV)	"	776	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments: Fail DO CCV.

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: FR LC34 Project #: TR0012A Field Personnel: Rachel Donahue

Water Quality Meter - Model/Serial #: YSI 556 MPS 10A#2823AF Turbidimeter - Model/Serial # Hach 2100Q / 10110C006399

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		10/26/11	7:34	~~23.51~~ RED 10/26	~~8.40~~	~~8.40~~	~~100.0~~	
CAL ICV CCV				23.06	8.56	9.24	99.2	P F
CAL ICV CCV		10/26/11	10:18	~~23.81~~ 23.81	~~8.45~~	7.97	94.3	P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
							Acceptance Criteria: +/- 5%	
CAL ICV CCV		10/26/11	8:01	1.413	8809	03/12	~~1.388~~ 1.413	P F
CAL ICV CCV		10/26/11	10:15	1.413	8809	03/12	1.410	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
							Acceptance Criteria: +/-0.2 SU	
CAL ICV CCV		10/26/11	7:53	4.0	2002854	01/12	~~3.99~~ 4.00	P F
CAL ICV CCV		10/26/11	7:55	7.0	2002832	01/12	7.05	P F
CAL ICV CCV		10/26/11	7:57	10.0	1001326	07/12	~~10.04~~ 10.01	P F
CAL ICV CCV		10/26/11	10:11	4.0	2002854	01/12	~~4.13~~ 4.02	P F
CAL ICV CCV		10/26/11	10:12	7.0	2002832	01/12	6.95	P F
CAL ICV CCV		10/26/11	10:14	10.0	1001326	07/12	9.86	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		10/26/11	7:59	229	1061713	01/30/12	~~240.9~~ 240	P F
CAL ICV CCV		10/26/11	10:09	229	1061713	01/30/12	228.7	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? (Yes) No

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	10/26/11	10.1	P F
CAL ICV (CCV)	10/26/11	9.91	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL (ICV) CCV	10/26/11	20.2	P F
CAL ICV (CCV)	10/26/11	19.9	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	10/26/11	98.3	P F
CAL ICV (CCV)	10/26/11	101	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL (ICV) CCV	10/26/11	817	P F
CAL ICV (CCV)	10/26/11	791	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J. Barthelt

Water Quality Meter - Model/Serial #: YSI 556 MPS / 09D101399 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		10/27/11	0739	23.20	8.54%	7.27/8.55	85.1/100.0	(P) F
CAL ICV (CCV)		"	1428	26.12	8.39	8.30	102.4	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/27/11	0748	1.413 4.66 JB	3809	03-2012	1.370/1.403	(P) F
CAL ICV (CCV)		"	1436	7.0	"	"	1.410	(P) F
CAL ICV CCV				10.0				P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		10/27/11	0742	4.0	2002034	01-2012	4.04/4.00	(P) F
CAL (ICV) CCV			↓	7.0	2002012	01-2012	6.88/7.00	(P) F
CAL (ICV) CCV				10.0	2101326	07-2012	10.14/10.00	(P) F
CAL ICV (CCV)			1432				4.00	(P) F
CAL ICV (CCV)				"	"	"	6.99	(P) F
CAL ICV (CCV)			↓				9.94	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		10/27/11	0751	229 @ 25	1001713	06-2012	230.7/229.0	(P) F
CAL ICV (CCV)		"	1438	"	"	"	231.0	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	10/27/11	10.2	(P) F
CAL ICV (CCV)	"	11.0	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	10/27/11	20.1	(P) F
CAL ICV (CCV)	"	21.3	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	10/27/11	100	(P) F
CAL ICV (CCV)	"	104	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	10/27/11	801	(P) F
CAL ICV (CCV)	"	784	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/~~25~~ 26/2011 Sampled By: J. Bartbit

Station (Well ID): RW 0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / HERON / DURHAM

Time @ Start of Purging: 0905 Time @ End of Purging: 0923 Total Purging Time: 18 min. Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 3.39 Ft.BTOC Total Well Depth: 42 Ft.BLS Reference: — Well diameter: 6 in. Volume in well: 61.7 gal

SCREEN: 35-42 Ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0905	Start	24.85	7.11	1.217	24.6	0.60	-255.6	2.43	0.791	clear	—
0915	1.0	25.28	7.06	1.215	0.86	0.60	-306.1	1.48	0.790	"	
0919	1.4	25.28	7.06	1.220	0.61	0.61	-309.2	1.34	0.793	"	
0923	1.8	25.32	7.04	1.221	0.62	0.61	-313.7	1.19	0.794	"	
			Fail DO CCV								

Flow cell turned on side during sampling may be cause for higher than normal D.O.

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-2011 10 26 Time Collected: 0923 Comments: VOC+nBA, VFA, Br & I, TOL, Sulfide, MEE, Anions, Alk., Dissolved Metals, DHC & VcrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

(MS/MSD - VFA)

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: J. Barthel

Station (Well ID): IW0002I Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 1045 Time @ End of Purging: 1100 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 027.5 ft. (BTOC)

Water Level: 3.47 ft.BTOC Total Well Depth: 30 ft.BLS Reference: — Well diameter: 2 in. Volume in well: 4.89 gal

SCREEN: 25-30 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1045	Start	25.88	7.50	0.619	73.7	0.30	-212.5	1.32	0.399	clear	—
1055	1.0	26.01	7.00	0.744	13.0	0.36	-292.4	0.79	0.485	"	
1057	1.2	26.02	6.99	0.760	9.90	0.37	-294.9	0.65	0.495	"	
1100	1.5	26.04	6.99	0.780	9.47	0.38	-290.7	0.52	0.508	"	
				Fail DO ECV							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002I-027.5-20111026 Time Collected: 1100 Comments: VOC+nBA, VFA, Br&I, TOC, Sulfide, MEE, Anions, Alk., Dissolved Metals. (MS/MSD - Br&I)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 35 + 0.25 = 0.30 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: J. Bartlett

Station (Well ID): IW0002D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: (SOLINST) DURHAM HERON

Time @ Start of Purging: 1217 Time @ End of Purging: 1232 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 037.5 ft. (BTOC)

Water Level: 4.81 ft.BTOC Total Well Depth: 40 ft.BLS Reference: — Well diameter: 2 in. Volume in well: 6.5 gal

SCREEN: 35 – 40 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1217	Start	26.60	6.42	1.916	4.52	0.97	-198.4	2.38	1.242	clear	—
1227	1.0	26.57	6.92	2.195	2.02	1.12	-301.9	0.73	1.435	"	
1229	1.2	26.56	6.88	2.247	1.29	1.15	-279.5	0.70	1.466	"	
1232	1.5	26.50	6.92	2.294	1.54	1.17	-311.7	0.61	1.402	"	
				Fail DO CCV							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002D-037.5-20111026 Time Collected: 1232 Comments: VOC+mBA, VFA, Br & F, TOC, Sulfide, MEE, Anions, Alk., Dissolved Metals. (MS/MSD - TOC)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 4540.25 = 0.31 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0001A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: 9:37 Time @ End of Purging: 9:52 Total Purging Time: 15 min. Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 2.78 ft.BTOC Total Well Depth: 26 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.5 gal.

SCREEN: 23-26 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
9:37	Start	—	—	—	—	—	—	—	—	—	
9:47	1	25.53	7.23	0.857	3.39	0.42	-139.0	0.54	0.557	clear	
9:49	1.2	25.53	7.25	0.858	1.99	0.42	-146.4	0.63	0.558	clear	
9:52	1.4	25.54	7.26	0.858	1.73	0.42	-145.9	0.46	0.558	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001A-024.5-20111025 Time Collected: 9:55 Comments: VOC+nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk., Dissolved Metals. (MS/MSD - Sulfide)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=0.328 gal

30 0.25

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0001B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: 10:34 Time @ End of Purging: 10:47 Total Purging Time: 13 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 2.89 ft.BTOC Total Well Depth: 33 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.7 gal

SCREEN: 30-33 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
10:34	Start REP 11/11	—	—	—	—	—	—	—	—	—	—
10:43	~~0.9~~ 0.9	25.84	6.98	2.328	6.82	1.19	-168.1	0.94	1.515	clear	
10:45	1.1	25.81	7.02	2.355	0.93	1.21	-167.6	0.55	1.533	clear	
10:47	1.3	25.83	7.03	2.372	0.70	1.22	-175.0	0.39	1543	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001B-031.5-201110 25 Time Collected: 10:55 Comments: VOC+nBA, VFA, Br&F, TOC, Sulfide, MEE, Anions, Alk., Dissolved Metals. (MS/MSD - VOC)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.349 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0001C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: 11:21 Time @ End of Purging: 11:35 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 4.28 ft.BTOC Total Well Depth: 40 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.8 gal.

SCREEN: 37-40 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
—	—	—	—	—	—	—	—	—	—	—	—
11:21	Start										
11:31	1	25.50	7.09	2.273	1.54	1.16	-268.10	0.10	1.488	clear	
11:33	1.2	25.53	7.08	2.359	0.97	1.21	-256.0	0.10	1.538	clear	
11:35	1.4	25.65	7.07	2.393	0.82	1.22	-274.1	0.10	1.551	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001C-038.5-20111025 Time Collected: 11:41 Comments: VOC + BA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk, Dissolved Metals, DHC & rcrA. (MS | MSD - MEE)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.361 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0001D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: ~~14:22~~ ~~14:55~~ PAD Time @ End of Purging: 14:36 Total Purging Time: 14 min. Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: ~~1.14~~ PAD 3.14 ft.BTOC Total Well Depth: 47 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.9 gal.

SCREEN: 44-47 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
~~14:22~~ ~~14:55~~ PAD	Start	—	—	—	—	—	—	—	—	—	
14:32	1	25.67	7.09	2.761	1.14	1.43	-278.1	0.33	1.794	clear	
14:34	1.2	25.64	7.11	2.759	0.91	1.43	-296.8	0.34	1.794	clear	
14:36	1.4	25.61	7.10	2.757	4.40	1.42	-301.7	0.35	1.792	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001D-045.5-20111025 Time Collected: 14:40 Comments: VOC + nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk., Dissolved Metals. (MS | MSD - Anions)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.38 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: Rachel Donahue

Station (Well ID): BW00024 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: 9:33 Time @ End of Purging: 9:47 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 3.36 ft.BTOC Total Well Depth: 26 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.5 gal.

SCREEN: 23-26 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
9:33	Start	—	—	—	—	—	—	—	—	—	
9:43	1.0	25.78	7.20	1.2 72	4.71	0.63	-186.6	0.25	0.829	clear	
9:45	1.2	25.77	7.19	1.292	3.95	0.64	-189.1	0.26	0.840	clear	
9:47	1.4	25.76	7.18	1.299	2.46	0.65	-184.2	0.31	0.845	clear	
						DO Failed	CCV				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00024-024.5-20111026 Time Collected: 09:50 Comments: VOC+nBA, VFA, Br⁻, TOC, MEE.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.331 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/24/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 8:53 Time @ End of Purging: 9:07 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 3.66 ft.BTOC Total Well Depth: 33 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.7 gal.

SCREEN: 30-33 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
8:53	Start	—	—	—	—	—	—	—	—	—	
9:03	1.0	25.47	7.31	1.207	3.91	0.60	-234.7	0.30	0.784	clear	
9:05	1.2	25.47	7.33	1.200	4.23	0.59	-226.5	0.31	0.778	clear	
9:07	1.4	25.46	7.34	1.192	3.23	0.59	-236.5	0.35	0.774	clear	
							DO failed QC				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002B-031.5-20111024 Time Collected: 9:10 Comments: VOC+nBA, VFA, Br & I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.3588 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0002C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: 10:05 Time @ End of Purging: 10:19 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 3.72 ft.BTOC Total Well Depth: 40 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.8 gal

SCREEN: 37-40 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
10:05	Start	—	—	—	—	—	—	—	—	—	
10:15	1.0	25.40	7.39	2.501	1.40	1.29	-322.9	0.16	1.628	clear	
10:17	1.2	25.39	7.38	2.510	1.42	1.29	-327.1	0.15	1.631	clear	
10:19	1.4	25.37	7.38	2.518	0.80	1.29	-330.1	0.15	1.637	clear	
							DO failed QCV				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002C-038.5-201110 26 Time Collected: 10:25 Comments: VOC+nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.361 gal

(MS | MSD - Alk)

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0002D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / HERON / (DURHAM)

Time @ Start of Purging: 10:50 Time @ End of Purging: 11:04 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 4.20 ft.BTOC Total Well Depth: 47 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.9 gal.

SCREEN: 44-47 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
10:58	Start	—	—	—	—	—	—	—	—	—	
~~10:~~11:00	1	25.34	7.61	2.732	1.65	1.41	-333.8	0.79	1.777	clear	
11:02	1.2	25.32	7.58	2.744	1.22	1.42	-325.1	0.78	1.786	clear	
11:04	1.4	25.29	7.56	2.762	0.72	1.43	-337.7	0.77	1.797	clear	
							DO failed ccv				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002D-045.5-20111026 Time Collected: 11:10 Comments: VOC+nBA, VFA, Br & I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.395 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: J. Bartlett

Station (Well ID): BW00003A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: (SOLINST) / DURHAM / HERON

Time @ Start of Purging: 1316 Time @ End of Purging: 1332 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 3.37 Ft.BTOC Total Well Depth: 26 Ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.5 gal

SCREEN: 23-26 Ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1316	Start	26.48	7.46	0.903	10.2	0.44	-199.4	1.68	0.582	clear	—
1326	1.0	26.27	7.27	0.854	1.97	0.42	-242.0	1.13	0.555	"	
1329	1.3	26.20	7.29	0.856	3.04	0.42	-237.4	1.04	0.556	"	
1332	1.6	26.36	7.23	0.853	1.84	0.42	-252.3	0.80	0.556	"	
				Foul DO CCU							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00003A-024.5-2011 10 26 Time Collected: 1332 Comments: VOC + BA, VFA, D.O. & I, TOC, M&E

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 X 31 * 0.25 = 0.32gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/27/2011 Sampled By: J. Bartlett

Station (Well ID): BW0003B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / (DURHAM) HERON

Time @ Start of Purging: 0931 Time @ End of Purging: 0946 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 3.45 ft.BTOC Total Well Depth: 33 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.7 gal

SCREEN: 30-33 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0931	Start	25.11	7.27	1.133	12.1	0.56	-234.9	4.16	0.735	clear	—
0941	1.0	25.16	7.30	0.954	1.69	0.47	-242.1	1.09	0.620	"	
0943	1.2	25.17	7.30	0.951	1.32	0.47	-238.1	0.97	0.618	"	
0946	1.5	25.16	7.30	0.945	1.40	0.46	-237.8	0.78	0.614	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003B-031.5-20111027 Time Collected: 0946 Comments: VOC+NBA, VFA, Br & I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 38 + 0.25 = 0.35 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/27/2011 Sampled By: J. Bartlett

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / HERON / (DURHAM)

Time @ Start of Purging: 1039 Time @ End of Purging: 1055 Total Purging Time: 16 min. Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 3.51 ft.BTOC Total Well Depth: 40 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.8 gal

SCREEN: 37-40 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1039	Start	25.84	5.82	1.842	4.39	0.93	-243.2	3.49	1.187	clear	—
1049	1.0	25.62	7.18	1.749	2.81	0.88	-275.5	0.45	1.135	"	
1052	1.3	25.58	7.26	1.747	3.16	0.88	-277.0	0.40	1.134	"	
1055	1.6	25.57	7.32	1.753	2.66	0.88	-281.9	0.36	1.140	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-038.5-201110 27 Time Collected: 1055 Comments: VOC + nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk., Dhc & ecrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 × 45 + 0.25 = 0.37 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: J. Bartlett

Station (Well ID): BW0003D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 1354 Time @ End of Purging: 1409 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 13.39 ft.BTOC Total Well Depth: 47 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.9 gal

SCREEN: 44-47 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1354	Start	26.11	6.07	2.558	57.0	1.32	-225.0	3.06	1.670	clear	—
1404	1.0	25.80	6.34	2.565	10.8	1.32	-284.0	1.01	1.665	"	
1406	1.2	25.74	6.38	2.556	9.61	1.31	-284.3	0.85	1.662	"	
1409	1.5	25.82	6.43	2.612	6.81	1.35	-292.0	0.60	1.702	"	
			Fail DO CCV.								

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002D-045.5-20111026 Time Collected: 1409 Comments: VOC+nBA, VFA, Br-I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 52 + 0.25 = 0.39 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 0949 Time @ End of Purging: 1005 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 4.17 ft.BTOC Total Well Depth: 57 ft.BLS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal

SCREEN: 47-57 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0949	Start	24.89	7.30	2.614	7.46	1.35	-300.9	1.53	1.700	clear	—
0959	1.0	24.86	7.22	2.654	1.87	1.37	-320.8	0.45	1.725	"	
1002	1.3	24.87	7.22	2.657	1.67	1.37	-322.3	0.37	1.728	"	
1005	1.6	24.86	7.20	2.661	1.65	1.37	-322.9	0.31	1.730	"	
				fail DO ccv							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20111026 Time Collected: 1005 Comments: VOC + nBA, VFA, Br & F, TOC, sulfide, MEE, Anions, Alk., Dissolved Metals, DHC & VC/A. (MS/MSD - VOC)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 62 + 0.25 = 0.34 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: Rachel Donahue

Station (Well ID): IW0002DI Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 13:21 Time @ End of Purging: 13:35 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 4.55 ft.BTOC Total Well Depth: 55 ft.BLS Reference: — Well diameter: 2 in. Volume in well: 0.91 gal

SCREEN: 50-55 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
13:21	Start	—	—	—	—	—	—	—	—	—	
13:31	~~Rep 1 10/26 0.54~~	26.59	7.57	2.722	14.5	1.40	-303.1	0.29	1.772	clear	
13:33	1.2	26.51	7.58	2.726	9.39	1.41	-301.9	0.29	1.772	clear	
13:35	1.4	26.61	7.57	2.725	7.06	1.41	-301.9	0.27	1.773	clear	
							DO failed QC				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002DI-052.5-20111026 Time Collected: 13:40 Comments: VOC+MBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk., Dissolved Metals. (MS/MSD - Dissolved Metals)

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ____ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.906 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: Rachel Donahue

Station (Well ID): BW00018 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / (DURHAM) HERON

Time @ Start of Purging: 13:40 Time @ End of Purging: 13:54 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 4.07 ft.BTOC Total Well Depth: 54 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.1 gal

SCREEN: 51-54 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
13:40	Start	—	—	—	—	—	—	—	—	—	
13:50	1	25.88	7.49	2.681	1.26	1.38	-275.5	0.25	1.743	clear	
13:52	1.2	25.81	7.47	2.687	0.79	1.39	-277.6	0.21	1.746	clear	
13:54	1.4	25.83	7.48	2.689	0.48	1.39	-281.4	0.20	1.748	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00018-052.5-20111025 Time Collected: 14:00 Comments: VOC+nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alk., Dissolved Metals, DHC & vcrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.403 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: Rachel Donahue

Station (Well ID): BW 0001 F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: 12:55 Time @ End of Purging: 13:09 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 4.14 ft.BTOC Total Well Depth: 61 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.2 gal.

SCREEN: 58-61 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
12:55	Start										
13:05	1	25.04	7.33	2.651	0.91	1.37	-197.9	0.51	1.724	clear	
13:07	1.2	25.59	7.44	2.633	0.59	1.37	-202.0	0.36	1.732	clear	
13:09	1.4	25.55	7.49	2.670	1.40	1.38	-188.4	0.30	1.736	clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001F-059.5-201110 25 Time Collected: 13:15 Comments: VOC+nBA, VFA, Br & I, TOC, Fulride, MEE, Anions, Alk., Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.419 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: Rachel Donahue

Station (Well ID): BW00028 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM HERON

Time @ Start of Purging: 12:13 Time @ End of Purging: 2:27 Total Purging Time: 14min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 4.71 ft.BTOC Total Well Depth: 54 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.1 gal.

SCREEN: 51-54 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
12:13	Start										
12:23	1.0	26.15	7.79	2.633	2.25	1.36	-253.4	0.20	1.714	clear	
12:25	1.2	26.17	7.76	2.652	1.76	1.37	-258.2	0.20	1.726	clear	
12:27	1.4	26.09	7.77	2.657	1.83	1.37	-250.5	0.20	1.727	clear	
							DO failed cal				

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00028--052.5-201110 Time Collected: 12:30 Comments: VOC+nBA, Br & F, TOC, MEE, VFA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.408 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/26/2011 Sampled By: Rachel Donahue

Station (Well ID): BW0002F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 12:46 Time @ End of Purging: 13:00 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 4.14 ft.BTOC Total Well Depth: 61 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.2 gal

SCREEN: 58-61 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
12:46	Start	—	—	—	—	—	—	—	—	—	
12:56	1.0	26.39	7.66	2.132	0.56	1.41	-273.1	3.5	1.776	clear	
12:58	1.2	26.31	7.68	2.131	0.29	1.41	-229.1	0.24	1.776	clear	
13:00	1.4	26.29	7.69	2.134	0.40	1.41	-220.2	0.24	1.776	clear	
						DO failed cal					

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002F-059.5-20111026 Time Collected: 13:00 Comments: VOC+nBA, VFA, Br & I, TOC, MEE.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ____ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=0.42 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/27/2011 Sampled By: J. Bartlett

Station (Well ID): BW00038 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / HERON / DURHAM

Time @ Start of Purging: 1002 Time @ End of Purging: 1018 Total Purging Time: _____ Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 3.38 ft.BTOC Total Well Depth: 54 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.1 gal

SCREEN: 51-54 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1002	Start	25.58	4.76	2.249	5.66	1.16	-184.5	3.70	1.483	clear	—
1012	1.0	25.29	6.63	2.603	2.05	1.34	-270.4	0.66	1.693	"	
1014	1.2	25.30	7.02	2.615	1.61	1.35	-285.3	0.52	1.701	"	
1016	1.4	25.28	7.09	2.621	1.77	1.35	-287.8	0.46	1.704	"	
1018	1.6	25.25	7.14	2.630	1.44	1.36	-288.4	0.42	1.710	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00038-052.5-20111027 Time Collected: 1018 Comments: VOC+nBA, VFA, Br&I, TOC, MEE, DHC & VC+A

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 59 + 0.25 = 0.40 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/27/2011 Sampled By: J. Bartlett

Station (Well ID): BW0003F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 1119 Time @ End of Purging: 1134 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 3.97 ft.BTOC Total Well Depth: 61 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.2 gal

SCREEN: 58-61 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1119	Start	26.22	5.84	2.600	8.02	1.34	-239.0	2.71	1.699	clear	—
1129	1.0	25.79	7.22	2.728	2.46	1.41	-277.9	0.40	1.773	"	
1131	1.2	25.88	7.27	2.728	1.29	1.41	-272.8	0.37	1.774	"	
1134	1.5	25.95	7.32	2.733	1.37	1.41	-287.1	0.34	1.776	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003F-059.5-20111027 Time Collected: 1134 Comments: VOC+MBA, VFA, Br & I, TOC, ~~Sulfide~~ BB, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 * 66 + 0.25 = 0.42 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: J. Bartlett

Station (Well ID): FW0076 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: (SOLINST) / DURHAM / HERON

Time @ Start of Purging: 1428 Time @ End of Purging: 1502 Total Purging Time: 34 min. Depth of Pump or Intake Tubing: 075.0 ft. (BTOC)

Water Level: 4.26 Ft.BTOC Total Well Depth: 80 Ft.BLS Reference: — Well diameter: 2 in. Volume in well: 13.0 gal.

SCREEN: 70-80 Ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1428	Start	26.89	7.34	2.555	186	1.31	-216.7	0.40	1.659	cloudy	
1438	1.0	26.91	7.38	2.568	117	1.32	-215.2	0.09	1.670	"	
1443	1.5	26.58	7.43	2.579	86.3	1.33	-199.7	0.08	1.677	"	
1448	2.0	26.76	7.45	2584	62.6	1.33	-239.4	0.07	1.681	"	
1453	2.5	26.87	7.43	2.592	44.1	1.33	-204.0	0.06	1.685	"	
1458	3.0	26.97	7.45	2.599	40.7	1.34	-202.3	0.06	1.689	"	
1500	3.2	27.00	7.44	2.601	39.8	1.34	-196.4	0.06	1.691	"	
1502	3.4	27.01	7.43	2.601	38.7	1.34	-199.5	0.07	1.691	"	
					turbidity not lowering ±5 NTU.						

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-FW0076-075.0-20111025 Time Collected: 1502 Comments: VOC+MBA, VFA, Br&I, TOC, Mea, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.0026 x 85 + 0.25 = 0.47 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: J. Bartlett

Station (Well ID): IW0067D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: (SOLINST) / HERON / DURHAM

Time @ Start of Purging: 1145 Time @ End of Purging: 1202 Total Purging Time: 17 min. Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 3.89 ft.BTOC Total Well Depth: 43 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.86 gal

SCREEN: 38-43 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1145	Start	25.93	7.59	2.627	127	1.35	-229.9	1.30	1.707	cloudy	—
1155	1.0	26.13	7.64	2.624	23.5	1.35	-242.0	0.13	1.706	clear	
1158	1.3	25.97	7.64	2.626	14.1	1.35	-264.2	0.10	1.702	"	
1200	1.5	25.97	7.57	2.617	8.42	1.35	-252.4	0.10	1.701	"	
1202	1.7	26.04	7.51	2.614	7.28	1.35	-244.9	0.09	1.699	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0067D-040.5-20111025 Time Collected: 1202 Comments: VOC + MBA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 48 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: J. Bartlett

Station (Well ID): IW0067D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 1257 Time @ End of Purging: 1336 Total Purging Time: 99 min Depth of Pump or Intake Tubing: 068.0 ft. (BTOC)

Water Level: 3.41 ft.BTOC Total Well Depth: 73 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.46 gal

SCREEN: 63-73 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1257	Start	25.90	7.59	2.604	167	1.34	-116.9	1.52	1.704	cloudy	
1307	1.0	26.22	7.54	2.667	610	1.37	-143.0	0.29	1.734	"	
1317	2.0	25.51	7.50	2.656	110	1.37	-142.5	0.19	1.727	"	
1327	3.0	25.66	7.51	2.654	63.5	1.37	-148.6	0.15	1.725	"	
~~1329~~ 1332	~~3.2~~ 3.5	~~25.60~~ 25.68	7.50	2.665	71.2	1.37	-151.0	0.14	1.730	"	
1334	3.7	25.87	7.50	2.657	75.8	1.37	-151.2	0.13	1.727	"	
1336	3.9	25.87	7.50	2.658	74.8	1.37	-141.5	0.13	1.728	"	
					turbidity not lowering. ±5 NTU						

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0067D1-068.0-20111025 Time Collected: 1336 Comments: VOC+nBA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 78 + 0.25 = 0.36 gal.

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: J. Bartlett

Station (Well ID): IW0070D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: (SOLINST) / HERON / DURHAM

Time @ Start of Purging: 1045 Time @ End of Purging: 1100 Total Purging Time: 15 min. Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 2.86 ft.BTOC Total Well Depth: 43 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.86 gal.

SCREEN: 38-43 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1045	Start	26.12	7.44	2.525	62.3	1.30	-228.2	0.77	1.653	clear	—
1055	1.0	26.17	7.64	2.670	8.25	1.38	-273.3	0.08	1.735	"	
1057	1.2	26.15	7.64	2.674	5.81	1.38	-274.8	0.08	1.738	"	
1100	1.5	26.16	7.64	2.672	4.27	1.38	-280.9	0.08	1.737	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0070D-040.5-20110 25 Time Collected: 1100 Comments: VOC+nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 48 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: J. Bartlett

Station (Well ID): IW0070D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: (SOLINST) / DURHAM / HERON

Time @ Start of Purging: 1109 Time @ End of Purging: 1124 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 070.0 ft. (BTOC)

Water Level: 3.36 ft.BTOC Total Well Depth: 75 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.5 gal.

SCREEN: 65-75 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1109	Start	26.28	7.57	2.159	70.5	1.11	-211.6	1.08	1.448	cloudy	—
1119	1.0	26.27	7.55	2.642	13.1	1.36	-192.8	0.11	1.720	clear	
1121	1.2	26.08	7.55	2.677	8.83	1.38	-185.3	0.11	1.741	"	
1124	1.5	26.10	7.56	2.694	8.01	1.39	-185.8	0.10	1.749	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0070D1-070.0-20111025 Time Collected: 1124 Comments: VOC+nBA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 80 + 0.25 = 0.36 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: J. Bartelt

Station (Well ID): IW0071D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 0949 Time @ End of Purging: 1004 Total Purging Time: 15 min. Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 0.8 ft.BTOC Total Well Depth: 43 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.86 gal

SCREEN: 38-43 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0949	Start	24.17	7.33	1.967	8.80	1.01	-202.4	1.44	1.301	clear	-
0959	1.0	24.23	7.56	2.385	2.22	1.22	-216.1	0.18	1.550	"	
1002	1.3	24.26	7.55	2.388	1.24	1.23	-219.8	0.15	1.553	"	
1004	1.5	24.26	7.54	2.394	1.10	1.23	-221.9	0.12	1.556	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0071D-040.5-20111025 Time Collected: 1004 Comments: VOC + nBA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 48 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 10/25/2011 Sampled By: J. Bartlett

Station (Well ID): IW007ID1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: SOLINST / DURHAM / HERON

Time @ Start of Purging: 1011 Time @ End of Purging: 1026 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 070.0 ft. (BTOC)

Water Level: 0.2 ft.BTOC Total Well Depth: 75 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.5 gal

SCREEN: 65-75 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1011	Start	24.36	7.65	2.026	31.4	1.06	-181.1	0.75	1.391	clear	—
1021	1.0	24.35	7.56	2.538	11.9	1.31	-154.6	0.11	1.650	"	
1023	1.2	24.32	7.56	2.545	7.62	1.31	-158.3	0.11	1.654	"	
1026	1.5	24.47	7.58	2.546	4.16	1.31	-160.6	0.09	1.655	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW007ID1-070.0-20111025 Time Collected: 1026 Comments: VOC+nBA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 80 + 0.25 = 0.36 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 10K101389 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		11/10/11	0800	23.33	8.530	8.51 / 8.53	99.7 / 100.0	(P) F
(CAL) ICV (CCV)		"	1421	25.49	8.203	8.13	98.8	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		11/10/11	0818	1.413	8809	03-2012	1.454 / 1.413	(P) F
(CAL) ICV (CCV)		"	1431	"	"	"	1.393	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		11/10/11	0806	4.0	2002034	01-2012	4.12 / 4.00	(P) F
CAL (ICV) CCV		↓	↓	7.0	2002012	01-2012	6.80 / 7.00	(P) F
CAL (ICV) CCV		↓	↓	10.0	2101326	07-2012	10.17 / 10.03	(P) F
CAL ICV (CCV)		↓	1426	↓	↓	↓	4.19	(P) F
(CAL) ICV (CCV)		↓	↓	"	"	"	7.00	(P) F
(CAL) ICV (CCV)		↓	↓	↓	↓	↓	9.90	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		11/10/11	0826	229 @ 25	1061713	06-2012	244.7 / 229.0	(P) F
(CAL) ICV (CCV)		"		"	"	"	224.1	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	11/10/11	10.6	(P) F
(CAL) ICV (CCV)	"	11.0	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	11/10/11	19.6	(P) F
(CAL) ICV (CCV)	"	20.8	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	11/10/11	100	(P) F
(CAL) ICV (CCV)	"	104	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	11/10/11	809	(P) F
(CAL) ICV (CCV)	"	781	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 11/10/11 Sampled By: J. Barthelt

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: _____

Time @ Start of Purging: 1044 Time @ End of Purging: 1059 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 5.40 ft. BTOC Total Well Depth: 57 ft. BGS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1044	Start	25.13	7.45	2.596	178	1.34	-337.1	2.76	1.687	cloudy	
1054	1.0	25.12	7.44	2.589	2.56	1.33	-343.1	0.30	1.683	clear	
1056	1.2	25.09	7.43	2.588	1.68	1.33	-341.6	0.25	1.682	"	
1059	1.5	25.12	7.42	2.587	1.35	1.33	-349.2	0.21	1.681	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20111110 Time Collected: 1059 Comments: VOC + nBA, VFA, TOC, MEE, Dissolved Metals, Anions w/ Br & I, Alkalinity, Sulfide.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 62 + 0.25 = 0.34 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 11/10/11 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo pump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1009 Time @ End of Purging: 1024 Total Purging Time: 15 min. Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 3.30 ft. BTOC Total Well Depth: 42 ft. BLS Reference: — Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35-42 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1009	Start	24.67	7.61	2.250	22.0	1.17	-305.0	2.55	1.485	clear	
1019	1.0	25.35	7.27	2.440	1.23	1.25	-331.3	0.27	1.586	"	
1021	1.2	25.33	7.27	2.442	0.92	1.25	-328.2	0.25	1.587	"	
1024	1.5	25.34	7.26	2.445	1.45	1.26	-332.5	0.21	1.589	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20111110 Time Collected: 1024 Comments: VOC+nBA, VFA, TOC, MEE, Dissolved Metals, Anions w/ Br & I, Alkalinity, Sulfide.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 X 0.035 X 47 + 0.25 = 0.32 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: ~~TR0272-4~~ JR0272-4 LE34 Project #: JR0272A Field Personnel: J. Barrett

Water Quality Meter - Model/Serial #: YSI 556MPS / 10K101389 Turbidimeter - Model/Serial # HACH 2100Q / 10110C006399

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		11/22/11	0929	24.21	8.387	8.07 / 8.39	96.2 / 100.0	(P) F
(CAL) ICV (CCV)		"	1333	25.95	7.991	7.85	102.1	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		11/22/11	0946	1.413	B809	03-2012	1.409 / 1.413	(P) F
(CAL) ICV (CCV)		"	1350	"	"	"	1.376	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		11/22/11	0934	4.0	20020834	01-2012	4.36 / 4.00	(P) F
CAL ICV CCV				7.0	20020912	01-2012	6.71 / 7.00	(P) F
CAL ICV CCV				10.0	2101326	07-2012	10.41 / 10.06	(P) F
CAL ICV (CCV)			1343				3.99	(P) F
CAL ICV (CCV)				"	"	"	6.86	(P) F
CAL ICV (CCV)							9.09	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		11/22/11	0948	229 @ 25	1061713	06-2012	229.2 / 229.0	(P) F
(CAL) ICV (CCV)		"	1352	"	"	"	228.7	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	11/22/11	9.44	(P) F
(CAL) ICV (CCV)	"	10.4	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	11/22/11	20.1	(P) F
CAL ICV (CCV)	"	20.1	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	11/22/11	100	(P) F
CAL ICV (CCV)	"	100	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	11/22/11	804	(P) F
(CAL) ICV (CCV)	"	804	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes ~~No~~

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 11/22/11 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geosub Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 550 MPS Water Level Meter: Durham

Time @ Start of Purging: 1039 Time @ End of Purging: 1054 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 3.72 ft. BTOC Total Well Depth: 42 ft. BGS Reference: - Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35 - 42 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1039	Start	25.72	7.48	2.492	5.40	1.28	-301.8	3.64	1.619	clear	
1049	1.0	25.62	7.22	2.468	0.80	1.27	-549.6	0.19	1.604	"	
1051	1.2	25.61	7.21	2.465	0.47	1.27	-554.9	0.18	1.601	"	
1054	1.5	25.60	7.19	2.461	0.77	1.26	-538.8	0.15	1.598	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20111122 Time Collected: 1054 Comments: VOC + nBA, MeE, TOC, VFA, Br & NO3 Anions, Alkalinity, Dissolved Metals, Sulfide

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 11/22/11 Sampled By: J. Barthelt

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Grundfos Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: _____ Time @ End of Purging: 1130 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 5.94 ft. BTOC Total Well Depth: 57 ft. BGS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1115	Start	25.81	7.51	2.478	5.07	1.27	-321.9	2.76	1.614	clear	
1125	1.0	25.55	7.32	2.582	0.80	1.33	-331.4	0.19	1.678	"	
1127	1.2	25.66	7.31	2.582	0.95	1.33	-344.3	0.16	1.678	"	
1130	1.5	25.74	7.31	2.583	0.79	1.33	-346.3	0.14	1.679	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20111122 Time Collected: 1130 Comments: VOC+nBA, MEE, TOC, VFA, BrO7 of Anions, Alkalinity, Dissolved Metals, Sulfide

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 52 + 0.25 = 0.34 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 10K101389 Turbidimeter - Model/Serial # HACH 21020C / 110200C 007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		12/15/11	0805	22.43	8.677	10.00/8.68	115.2/100.0	P F
(CAL) ICV (CCV)		"	1316	23.96	8.418	8.26	98.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		12/15/11	0822	1.413	8809	03-2012	1.429/1.413	P F
(CAL) ICV (CCV)		"	1334	"	"	"	1.415	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		12/15/11	0812	4.0	2002034	01-2012	4.03/4.00	P F
CAL (ICV) CCV			↓	7.0	2002012	01-2012	6.96/7.00	P F
CAL (ICV) CCV				10.0	2101326	07-2012	10.27/10.04	P F
CAL ICV (CCV)			1326				4.11	P F
CAL ICV (CCV)			↓	"	"	"	6.92	P F
CAL ICV (CCV)							10.02	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		12/15/11	0825	229 @ 25	1061713	06-2012	230.5/229.0	P F
CAL ICV (CCV)		"	1338	"	"	"	224.2	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	12/15/11	10.6	P F
(CAL) ICV (CCV)	"	10.9	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	12/15/11	20.2	P F
(CAL) ICV (CCV)		21.2	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) ICV (CCV)	12/15/11	101	P F
(CAL) ICV (CCV)	"	104	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	12/15/11	798	P F
(CAL) ICV (CCV)		782	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LG34 Project No.: TR0279A Task: 38 Date: 12/15/11 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron.

Time @ Start of Purging: 1011 Time @ End of Purging: 1026 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 4.24 ft. BTOC Total Well Depth: 42 ft · BLS Reference: — Well diameter: 6 in. Volume in well: 61.7 gal

Screen: 35-42 ft-BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1011	Start	24.67	7.48	2.191	7.56	1.11	-217.7	2.03	1.409	clear	
1021	1.0	25.04	7.20	2.055	1.55	1.05	-308.1	0.16	1.336	"	
1023	1.2	25.03	7.19	2.056	1.29	1.05	-311.1	0.14	1.337	"	
1026	1.5	25.00	7.18	2.064	0.99	1.05	-320.3	0.12	1.342	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LG34-RW0007-038.5-20111215 Time Collected: 1026 Comments: VOC tmBA, TOC, MEE, VFA, Sulfide, Dissolved Metals, Brd I w/ Anions, Alkalinity, DNC & VCrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LL34 Project No.: TR0272A Task: 38 Date: 12/15/11 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 1046 Time @ End of Purging: 1101 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 4.25 ft BTOC Total Well Depth: 57 ft. BLS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal.

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1046	Start	24.45	7.85	2.541	7.80	1.31	-257.5	5.57	1.652	clear/gray tint	
1056	1.0	24.58	7.46	2.548	1.22	1.31	-326.3	0.17	1.657	"	
1058	1.2	24.60	7.44	2.550	1.59	1.31	-329.6	0.15	1.658	"	
1101	1.5	24.60	7.42	2.551	1.37	1.31	-329.4	0.15	1.658	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LL34-RW0008-052.0-20111215 Time Collected: 1101 Comments: VOC+MBA, TOC, MEE, VFA, Sul/Acid, Dissolved Metals, Br & I w/ Anions, Alkalinity, DNC & NCA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 52 + 0.25 = 0.34 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J. Barth

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05F1542 AC Turbidimeter - Model/Serial # HACH 2100Q / 10110C006399

Dissolved Oxygen — DEP SOP FT 1500 — Acceptance Criteria: +/-0.3mg/L

	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
(CAL) (ICV) CCV	1/5/12 ~~0915~~	0915	18.47	9.371	8.03/8.37	88.7/100.0	(P) F
(CAL) ICV (CCV)	"	1108	24.51	8.340	8.62	103.3	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance — DEP SOP FT 1200 — Acceptance Criteria: +/- 5%

	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
(CAL) (CV) CCV	1/5/12	0920	1.413	9084	07-2012	1.608/1.413	(P) F
(CAL) ICV (CCV)	"	1132	"	"	"	1.352	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F

pH — DEP SOP FT 1100 — Acceptance Criteria: +/-0.2 SU

	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
(CAL) (ICV) CCV	1/5/12	0918	4.0	2012159	04-2012	3.89/4.00	(P) F
CAL (ICV) CCV		↓	7.0	2105403	04-2013	7.04/7.00	(P) F
CAL (ICV) CCV			10.0	2101366	07-2012	10.11/10.02	(P) F
(CAL) ICV (CCV)		1125				3.93	(P) F
(CAL) ICV (CCV)		↓	"	"	"	6.93	(P) F
(CAL) ICV (CCV)						9.85	(P) F

ORP — SOP N/A — Geosyntec Acceptance Criteria: +/- 5%

	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
(CAL) (ICV) CCV	1/5/12	0930	240 @25	3354	06-2012	237.1/240.0	(P) F
(CAL) ICV (CCV)	"	1134	"	"	"	236.9	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F

0.1 - 10 NTU — Std 10 NTU — Acceptance Criteria: +/- 10%

	Date	Reading (NTU)	Pass or Fail
(CAL) (ICV) CCV	1/5/12	9.54	(P) F
(CAL) ICV (CCV)	"	9.82	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU — Std 20 NTU — Acceptance Criteria: +/- 8%

	Date	Reading (NTU)	Pass or Fail
(CAL) (ICV) CCV	1/5/12	20.7	(P) F
(CAL) ICV (CCV)	"	20.5	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU — Std 100 NTU — Acceptance Criteria: +/- 6.5%

	Date	Reading (NTU)	Pass or Fail
(CAL) (ICV) CCV	1/5/12	101	(P) F
(CAL) ICV (CCV)	"	100	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU — Std 800 NTU — Acceptance Criteria: +/- 5%

	Date	Reading (NTU)	Pass or Fail
(CAL) (ICV) CCV	1/5/12	805	(P) F
(CAL) ICV (CCV)	"	773	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 1/5/12 Sampled By: J. Bartelt

Station (Well ID): RW000 8 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1026 Time @ End of Purging: 1041 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 5.42 ft. BTOC Total Well Depth: 57 ft. BLS Reference: - Well diameter: 6 in. Volume in well: 83.7 gal.

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1026	Start	22.27	7.48	2.402	2.89	1.24	-250.9	2.51	1.562	clear	
1036	1.0	22.94	7.39	2.419	0.67	1.25	-281.8	0.62	1.572	"	
1038	1.2	23.00	7.34	2.418	0.67	1.24	-282.2	0.61	1.572	"	
1041	1.5	22.96	7.26	2.420	0.80	1.25	-283.7	0.50	1573	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW 0008-052.0-20120105 Time Collected: 1041 Comments: VOC's, NBA, MEE, TOC, VFA, Sulfide, Soluble Metals, Alkalinity, Br & I w/ Anions

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 62 + 0.25 = 0.34 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 11/5/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst.

Time @ Start of Purging: 0944 Time @ End of Purging: 0959 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 4.41 ft. BTOC Total Well Depth: 42 ft. BTOC Reference: — Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35 - 42 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0944	Start	22.53	7.06	1.410	27.2	0.70	-199.7	1.65	0.906	clear	
0954	1.0	22.99	7.11	1.338	2.71	0.66	-243.1	0.72	0.859	"	
0956	1.2	23.05	7.13	1.340	4.27	0.67	-248.5	0.67	0.874	"	
0959	1.5	23.15	7.11	1.395	2.97	0.70	-255.3	0.50	0.907	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-20120105 Time Collected: 0959 Comments: VOC & nBA, MEEs, VFA, TOC, Sulfide, Soluble Metals, Alkalinity, Br & I w/ Anions

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J. Barnett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05F1542 AE Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen — DEP SOP FT 1500

Acceptance Criteria: +/-0.3mg/L

	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
(CAL) ICV CCV	1/26/12	0819	22.47	8.660	9.20/8.66	100.1/100.0	(P) F
(CAL) ICV (CCV)	"	1603	25.52	8.188	8.37	102.0	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance — DEP SOP FT 1200

Acceptance Criteria: +/- 5%

	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
(CAL) (ICV) CCV	1/26/12	0837	1.413	58009	03-2012	1.478/1.413	(P) F
(CAL) ICV (CCV)	"	1616	"	"	"	1.342	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F

pH — DEP SOP FT 1100

Acceptance Criteria: +/-0.2 SU

	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
(CAL) (ICV) CCV	1/26/12	0827	4.0	0110969	11-2012	4.24/4.00	(P) F
CAL ICV CCV	↓	↓	7.0	1081860	08-2013	6.86/7.00	(P) F
CAL ICV CCV	↓	↓	10.0	2101326	07-2012	10.02/10.00	(P) F
CAL ICV (CCV)	1/26/12	1607				4.00	(P) F
CAL ICV (CCV)	↓	↓	"	"	"	6.98	(P) F
CAL ICV (CCV)						9.95	(P) F

ORP — SOP N/A

Geosyntec Acceptance Criteria: +/- 5%

	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
(CAL) (ICV) CCV	1/26/12	0839	229@25	1061713	Nov-2012	234.3/229.0	(P) F
CAL ICV (COV)	"	1618	"	"	"	228.0	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU — Std 10 NTU

Acceptance Criteria: +/- 10%

	Date	Reading (NTU)	Pass or Fail
(CAL) ICV CCV	1/26/12	10.4	(P) F
(CAL) ICV (CCV)	"	10.2	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU — Std 20 NTU

Acceptance Criteria: +/- 8%

	Date	Reading (NTU)	Pass or Fail
(CAL) (ICV) CCV	1/26/12	19.9	(P) F
(CAL) ICV (CCV)	"	20.9	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU — Std 100 NTU

Acceptance Criteria: +/- 6.5%

	Date	Reading (NTU)	Pass or Fail
(CAL) (ICV) CCV	1/26/12	99.8	(P) F
(CAL) ICV (CCV)	"	105	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU — Std 800 NTU

Acceptance Criteria: +/- 5%

	Date	Reading (NTU)	Pass or Fail
(CAL) ICV CCV	1/26/12	796	(P) F
(CAL) ICV (CCV)	"	785	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 38 Date: 1/26/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1002 Time @ End of Purging: 1017 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 6.13 Ft. BTOC Total Well Depth: 42 Ft. BGS Reference: — Well diameter: 6 in. Volume in well: 61.7 gal.

Screen: 35-42 Ft BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1002	Start	24.35	7.25	2.004	3.93	1.02	-242.9	~~3.43~~ 2.23	1.302	clear	
1012	1.0	24.69	7.23	1.982	0.95	1.01	-302.8	1.26	1.288	"	
1014	1.2	24.69	7.24	1.987	1.28	1.01	-304.9	1.18	1.293	"	
1017	1.5	24.49	7.23	1.991	0.83	1.01	-259.9	1.06	1.293	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-0385-20120126 Time Collected: 1017 Comments: VOC + MBA, TOC, MSA, VFA, Br + I w/ Anions, Alkalinity, Dissolved Metals, Sulfide, DHC, vcrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: TR0272A Task: 300 Date: 1/26/12 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) A Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1045 Time @ End of Purging: 1100 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 6.00 ft. BTOC Total Well Depth: 57 ft. BGS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal.

Screen: 47-57 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1045	Start	24.57	7.41	2.368	1.88	1.21	-271.7	3.21	1.539	lt. gray	
1055	1.0	24.34	7.36	2.356	0.59	1.21	-252.0	0.94	1.531	clear	
1057	1.2	24.46	7.34	2.350	0.54	1.21	-259.9	0.87	1.528	"	
1100	1.5	24.48	7.36	2.350	0.59	1.21	-293.1	0.80	1.528	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-052.0-20120126

Sample ID: _____ Time Collected: 1100 Comments: VOC+nBA, TOC, MEE, VFA, Br + I w/ Anions, Alkalinity, Dissolved Metals, Sulfide, DHE, UCRA,

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 62 + 0.25 = 0.34 gal

Geosyntec consultants

DAILY FIELD REPORT

Project: LL34
Project No.: TR0272A
Contractors: -

Date: 2/14/12
Task No.: 38

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: X
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0800: J. Bartlett and O. Sizemore at office. Calibrate instruments (ICV). Load vehicle. Travel to site.
0900: On site. Perform O&M. Turn off system for sampling event.
0930: Begin sampling. For details refer to monitoring well sampling forms.
- pH probe reading out of range. Reset calibration of pH.
1200: O. Sizemore on site. Recalibrate pH - Called Pine Env. - confirmed malfunctioning pH probe. Order new YSI for pick up tomorrow.
1230: Lunch
1300: Off site
1530: at office - pack coolers for shipment
1600: Calibrate instruments (CCV.) pack up YSI for shipment.
1700: end of day.

Plans/Future Activities

2/14/12
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: TR0272A
Contractors: —

Date: 2/15/12
Task No.: 38

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: X
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0730: J. Bartlett at office. Load vehicle, travel to fedex for YSI pickup at 8AM.
0800 - Fedex opens at 9AM.
0900: pick up YSI, travel to site
1000: On site, D. Sizemore already on site. Calibrate YSI (ICV). Begin sampling. for details, refer to monitoring well sampling forms.
1230 - Lunch
1500: Off site. Travel to office
1530 - pack samples for shipment. Calibrate instruments (CCV).
1700 - End of day.

Plans/Future Activities

2/15/12
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of

Project: LC34
Project No.: TR0272A
Contractors: —

Date: 2/16/12
Task No.: 38

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: X
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0800: J. Bartlett at office. D. Sizemore at site. Calibrate instruments (ICV). Load vehicle, travel to badging station to meet C. Schmidt.
0900: C. Schmidt ~~did~~ going to be 1 hr late. J. Bartlett travel to LC34 site.
~~1000~~ 0930: J. Bartlett begin collecting data logger data.
1015: J. Bartlett off site to meet C. Schmidt at badging → MIPU sheet.
1200: On site. Continue collecting data logger data
1315: Complete collecting data logger data. Collect IDW sample: LC34-IDW-185539-20120216 @ 1330.
1400: J. Bartlett off site. ~~begin~~
1500: Pack coolers for shipment.

Plans/Future Activities

2/16/12
Signature/Date

j:\admnshare\rem-form\DAILY

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Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TRC272A Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 10M100161 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		2/15/12	1005	22.67	8.627	10.51/8.63	121.7/100.0	(P) F
(CAL) ICV (CCV)		"	1642	26.82	7.997	8.15	101.6	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/15/12	1018	1.413	9084	07-2012	1.462/1.413	(P) F
(CAL) ICV (CCV)		"	1653	"	"	"	1.405	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		2/15/12	1011	4.0	2106053	05-2013	4.05/4.00	(P) F
(CAL) (ICV) CCV				7.0	2105403	04-2013	6.99/7.00	(P) F
(CAL) (ICV) CCV				10.0	2101366	07-2012	9.98/10.00	(P) F
(CAL) ICV (CCV)			1645				4.08	(P) F
(CAL) ICV (CCV)				"	"	"	7.01	(P) F
(CAL) ICV (CCV)							10.00	(P) F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/15/12	1021	240@25	3354	06-2016	239.3/240.0	(P) F
(CAL) ICV (CCV)		"	1656	"	"	"	230.4	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	2/15/12	10.5	(P) F
(CAL) ICV (CCV)	"	10.7	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	2/15/12	20.3	(P) F
(CAL) ICV (CCV)	"	21.6	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	2/15/12	100	(P) F
(CAL) ICV (CCV)	"	101	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	2/15/12	799	(P) F
(CAL) ICV (CCV)	"	812	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

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Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272A Field Personnel: J Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 06D2138AL Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		2/14/12	0807	20.77	8.95D	8.96/8.95	100.1/99.9	(P) F
(CAL) ICV (CCV)		"	1617	26.50	8040	7.76	96.5	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/14/12	0827	1.413	8509	03-2012	1.370/1.415	(P) F
(CAL) ICV (CCV)		"	1623	"	"	"	1.417	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) ICV CCV		2/14/12	0810	4.0	0110969	11-2012	5.01/4.01	(P) F
(CAL) ICV CCV				7.0	1081800	03-2013	6.77/7.00	(P) F
(CAL) ICV CCV				10.0	2101326	07-2012	9.35/10.00	(P) F
(CAL) ICV (CCV)			1619				5.36/~~4.00~~	(P) (F)
(CAL) ICV (CCV)				"	"	"	6.94	(P) F
(CAL) ICV (CCV)							8.55	P (F)

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		2/14/12	0832	259 @ 25 ~~241.3~~	1061713 ~~[illegible]~~	~~02-2012~~	238.6/229.0	(P) F
(CAL) ICV (CCV)		"	1625	"	"	06-2012	222.9	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	2/14/12	10.5	(P) F
(CAL) ICV (CCV)	"	10.7	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	2/14/12	19.9	(P) F
(CAL) ICV (CCV)	"	21.2	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) ICV CCV	2/14/12	100	(P) F
(CAL) ICV (CCV)	"	105	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	2/14/12	802	(P) F
(CAL) ICV (CCV)	"	799	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

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Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: D. Sizemore

Water Quality Meter - Model/Serial #: YSI 556 04K16614 Turbidimeter - Model/Serial # HACH 2100 QP 1122664

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		2/14/12	1106	20.54	9.009	7.59-9.00	100.6	P F
CAL ICV CCV		2/14/12		13.65	8.466	8.63	100.5	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		2/14/12	1101	1.413	8809	3/12	1.124-1.413	P F
CAL ICV CCV		2/14/12	1636	5	SAME		1.340	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		2/14/12	1053	4	01109G9	11/12	4.29-4.02	P F
CAL ICV CCV		"	1055	7	01806	8/13	7.14-7.03	P F
CAL ICV CCV		"	1056	10	2161326	7/12	10.12-10.00	P F
CAL ICV CCV		2/14/12	1632		SAME		4.17	P F
CAL ICV CCV		"	1633				7.01	P F
CAL ICV CCV		"	1634				10.05	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		2/14/12	1109	240@25	3354	6/16	237.9-240.9	P F
CAL ICV CCV		2/14/12	1637	5	SAME		235.4	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	2/14/12	19.5-20	P F
CAL ICV CCV	2/14/12	10.5	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	2/14/12	95-100	P F
CAL ICV CCV	2/14/12	95.5	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments:

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0272 Field Personnel: P. Szemore

Water Quality Meter - Model/Serial #: YSI 556 04K1664 Turbidimeter - Model/Serial # Hach 21009 1122664

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		2/15/12	843	21.16	8.880	8.97-8.99	100.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		2/15/12	834	1.413	609	3/12	1.414-1.413	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		2/15/12	836	4	0110964	4/12	4.25-4.05	P F
CAL ICV CCV		↓	835	7	1051566	8/13	7.15-7.05	P F
CAL ICV CCV			839	10	1001326	7/12	10.10-10.01	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		2/6/12	840	240@25	3354	6/16	243.4-240.1	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 0 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	2/15/12	0.04-0.0	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	2/15	15-20	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV	2/15	7mm	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ___ NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: TR0172 Field Personnel: D. Sizemore

Water Quality Meter - Model/Serial #: YSI 556 04K1664 Turbidimeter - Model/Serial #: Hach 2100Q 11226C4

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		2/16/12	711	18.75	9.314	9.23-9.31	100.4	P F
CAL ICV CCV		2/16/12	1709	25.30	8.263	8.29	101.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		2/16/12	5/12 7/12	1.413	8809	5/12	1.419-1.414	P F
CAL ICV CCV		2/16/12	1713	"	"	"	1.440	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		2/16/12	714	4	0110969	4/12	4.11-4.02	P F
CAL ICV CCV		2/16/12	713	7	109866	9/13	7.29-7.05	P F
CAL ICV CCV		2/16/12	715	10	2101326	2/12	10.19-10.02	P F
CAL ICV CCV		2/16/12	1710				4.12	P F
CAL ICV CCV			1710				7.07	P F
CAL ICV CCV			1711				9.84	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		2/16/12	726	240@25	3354	6/16	241.2-240.3	P F
CAL ICV CCV		2/16/12	1717	"	"	"	240.3	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 0 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	2/16/12	0.05 0.00	P F
CAL ICV CCV	"	0.05	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	2/16/12	19.5-20.0	P F
CAL ICV CCV	"	20.5	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ___ NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ___ NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Comments:

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

6/23/2009

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: ~~0947~~ 1003 Time @ End of Purging: 1018 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 5.56 ft. BTOC Total Well Depth: 42 ft.BLS Reference: — Well diameter: 6 in. Volume in well: 61.7 gal

Screen : 35-42 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1003	Start	23.24	9.34	1.980	3.87	1.01	-267.2	1.21	1.287	clear	
1013	1.0	23.91	8.98	2.012	1.40	1.02	-264.1	0.51	1.308	"	
1015	1.2	23.93	8.90	2.012	0.89	1.02	-253.7	0.51	1.308	"	
1018	1.5	23.96	8.84	2.027	0.69	1.03	-252.2	0.53	1.319	"	
		* pH probe malfunctioning									

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-0385-20120214 Time Collected: 1018 Comments: VOC, fuBA, VFA, Brett, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals, DHC & vcrA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

Duplicate (VOC): LC34-FD-20120214-01

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: J. Bartlett

Station (Well ID): TW00021 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1338 Time @ End of Purging: 1353 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 027.5 ft. (BTOC)

Water Level: 5.70 ft. BTOC Total Well Depth: 30 ft.BLS Reference: — Well diameter: 2 in. Volume in well: 4.9 gal.

Screen : 25-30 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1338	Start	24.81	8.64	0.366	21.1	0.17	36.7	2.67	0.232	clear	
1348	1.0	24.80	7.35	0.628	4.45	0.31	-61.2	1.07	0.411	"	
1350	1.2	24.83	7.31	0.640	5.47	0.31	-67.4	0.99	0.417	"	
1353	1.5	24.79	7.32	0.658	4.09	0.32	-72.9	0.86	0.430	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-TW00021-0275-20120215 Time Collected: 1353 Comments: VOC & uBA, VFA, Br-F, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.30 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041x0.035x35+0.25=0.30 gal

QC: Anions (1 bottle); Duplicate: (VFA): LC34-FD-20120215-03

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Sumore

Station (Well ID): IW 00020 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1358 Time @ End of Purging: 1419 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 037.5 ft. (BTOC)

Water Level: 6.14 ft. BTOC Total Well Depth: 40 ft.BLS Reference: — Well diameter: 2 in. Volume in well: 6.5 gal

Screen : 35-40 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
							DNS				
1359	Start	25.48	7.13	1.500	7.1	.74	~~-85.7~~	.76	.95	Clear	None
1405	.5	25.33	6.98	1.260	6.4	.63	-279.1	.36	.82	"	"
1412	1.0	25.36	6.99	1.253	2.4	.62	-257.9	.34	.81	"	"
1419	1.5	25.37	6.99	1.251	4.0	.62	-242.9	.33	.81	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW00020-037.5-201202 Time Collected: 1419 Comments: VOCs, nBA, VFA, Brk I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Duplicate (Brk I) LC34-DP022202 — DMS

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Sumore

Station (Well ID): BW0001A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 811 Time @ End of Purging: 839 Total Purging Time: 28 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 6.28 ft. BTOC Total Well Depth: 26 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen : 23-26 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
811	Start	23.14	7.36	.793	15.1	.39	-114.1	1.16	.51	Clear	none
816	.5	24.16	7.41	.761	6.4	.37	-111.2	.54	.50	"	"
825	1.0	24.20	7.73	.765	5.4	.37	-112.9	.48	.50	"	"
832	1.5	24.21	7.75	.766	4.8	.37	-113.0	.47	.50	"	"
839	2.0	24.22	7.75	.766	2.8	.37	-110.9	.45	.50	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater
For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001A-0245-201202__ Time Collected: 839-845 Comments: VOC & nBA, VFA, Bot F, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

QC - LC34-BW0001A-0245-20120216

Alk ~~SRB~~ - 1 Bottle, PL, 125mL, unpres.

Duplicate (TOC) - LC34-FD-20120216-01

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Siemers

Station (Well ID): BW 0001B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 856 Time @ End of Purging: 924 Total Purging Time: 28 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 5.89 ft. BTOC Total Well Depth: 33 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.66 gal

Screen : 30-33 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
START	Start	24.73	7.34	.981	6.5	.49	-277.0	.48	.64	Clear	none
903	.5	24.09	7.37	.984	3.5	.48	-246.5	.31	.64	"	"
910	1.0	24.75	7.59	.985	3.2	.48	-250.1	.30	.64	"	"
917	1.5	24.76	7.60	.985	3.0	.48	-253.9	.29	.64	"	"
924	2.0	24.77	7.60	.985	2.5	.48	-254.1	.23	.64	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001B-031.5-201202 16 Time Collected: 924-939 Comments: VOC, EtBA, VFA, Brkt, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

QV LC34-BW0001B-031.5-20120216
Metals - (bottle, PL, 250mL, Unpres.

Duplicate (Sulfide): LC34-FD-20120216-002

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Seamore

Station (Well ID): BW 0001C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 944 Time @ End of Purging: 1005 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 6.13 ft. BTOC Total Well Depth: 40 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.80 gal

screen : 37-40 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
944	Start	24.34	7.12	.357	8.4	.61	-219.5	.37	.89	Clear	none
951	.5	24.23	7.25	1.021	6.3	.75	-226.1	.91	.89	"	"
958	1.0	24.25	7.25	1.025	5.4	.75	-230.2	.29	.89	"	—
1005	1.5	24.24	7.25	1.025	3.9	.75	-229.1	.30	.89	"	—

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001C-0385-20120216 Time Collected: 1005 - 1020 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals, DNC & VCnA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

~~Replicate (03)~~ LC34-FD-20120216-03 Br, I 1 Bottle, 1L, 125mL, Anions

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Szemore

Station (Well ID): BW 00010 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: _____

Time @ Start of Purging: 1150 Time @ End of Purging: 1211 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 5.99 ft. BTOC Total Well Depth: 47 ft. BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen : 44-47 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1150	Start	25.98	6.07	2.124	4.4	1.50	-263.0	.36	1.95	Clear	none
1157	5	25.22	6.68	2.911	1.5	1.51	-260.7	.40	1.89	"	"
1204	1.0	25.29	6.73	2.915	7.4	1.51	-250.8	.36	1.90	"	"
1211	1.5	25.43	6.73	2.916	7.9	1.51	-250.9	.36	1.90	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00010-045.5-20120216 Time Collected: 1211 Comments: VOC & mBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: DMC

Station (Well ID): BW0002A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1044 Time @ End of Purging: 1112 Total Purging Time: 28min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.85 ft. BTOC Total Well Depth: 26 ft. BGS Reference: — Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen : 23-26 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1044	Start	24.96	7.01	2.270	6.8	1.16	-234.8	.85	1.477	Clear	none
1051	.5	25.41	7.28	2,127	7.3	1.08	-249.1	.25	1.38	Clear	"
1058	1.0	25.38	7.36	2,110	6.5	1.07	-249.0	.20	1.37	Clear	"
1105	1.5	25.54	7.37	2116	5.8	1.09	-249.0	.18	1.39	"	"
1112	2.0	25.39	7.37	2.113	4.5	1.09	-249.0	.17	1.39	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002A-024.5-201202 15 Time Collected: 1112-1120 Comments: VOC & nBA, VFA, Br & I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Duplicate (MEE): LC34-FD-201202 15 -01

QC LC34-BW0002A-024.5-201202 15

VFA - 2 Bottles, CG, 40mL, H3PO4

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/ Sampled By: D. Sizemore

Station (Well ID): BW0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1003 Time @ End of Purging: 1024 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 5.97 ft. BTOC Total Well Depth: 33 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.66 gal

Screen : 30-33 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1003	Start	25.21	7.31	.800	10.8	.39	-216.0	.50	.51	Clear	none
1010	.5	25.15	7.28	.790	5.4	.37	-235.1	.31	.49	"	"
1017	1.0	25.16	7.26	.792	4.8	.36	-240.1	.23	.47	"	"
1024	1.5	25.35	7.26	.790	6.5	.35	-242.9	.22	.48	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002B-031.5-201202 15 Time Collected: 1024 - 1043 Comments: VOC & nBA, VFA, Br & F, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

LC34-BW0002B-031.5-2012 0215
TOC - 3 bottles, CG, 40mL, H2SO4

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: D. Sizemore

Station (Well ID): BW0002C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1423 Time @ End of Purging: ~~1423~~ 1444 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 5.45 ft. BTOC Total Well Depth: 40 ft. BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.80 gal

Screen : 37-40 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1423	Start	25.14	7.27	.762	14.3	.35	-190.1	.25	.47	Clear	none
1430	.5	25.32	7.44	.660	1.59	.32	-169.8	.12	.43	"	"
1437	1.0	25.25	7.44	.660	1.43	.32	-158.5	.11	.43	"	"
1444	1.5	25.23	7.45	.663	1.20	.32	-160.7	.10	.43	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002C-038.5-201202 14 Time Collected: 1444 + 1504 Comments: VOC & MBA, VFA, Br & I, TOC, Sulfide, M2E, Anions, Alkalinity

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Duplicate (Anions): LC34-FD-20120214-03

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: D. Sizemore

Station (Well ID): BW00020 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1342 Time @ End of Purging: 1403 Total Purging Time: 21 Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 5.45 ft. BTOC Total Well Depth: 47 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen: 44-47 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1345	Start	25.03	7.19	2.642	12.3	1.36	-291.8	<.21	1.72	Clear	none
1356	1.0	25.10	7.42	2.663	1.93	1.37	-281.3	.02	1.73	"	"
0043 1403	1.5	25.11	7.39	2.669	1.54	1.38	-290.1	.05	1.74	"	"
1410	2.0	25.16	7.41	2.670	1.41	1.38	-288.0	.09	1.74	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00020-045.5-20120214 Time Collected: 1410 - 1420 Comments: VOC & nBA, VFA, Br & I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: D Sumore

Station (Well ID): BW 0003A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1238 Time @ End of Purging: 1305 Total Purging Time: 27 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.30 ft. BTOC Total Well Depth: 26 ft. BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen : 23-26 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1238	Start	25.79	7.01	.757	2.2	.49	-201.2	1.23	.75	Clear	none
1245	.5	24.74	7.47	.759	2.0	.37	-157.4	2.85	.49	"	"
1252	1.0	24.78	7.48	.759	4.3	.37	-154.3	.16	.49	"	"
1258	1.5	24.79	7.47	.759	5.8	.37	-153.3	.17	.49	"	"
1305	2.0	24.83	7.47	.758	2.1	.37	-150.4	.18	.49	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003A-024.5-201202 LS Time Collected: 1305-1312 Comments: VOC & nBA, VFA, Br & I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: D. Sizemore

Station (Well ID): BW0003B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Parker

Time @ Start of Purging: 1207 Time @ End of Purging: 1229 Total Purging Time: 21 Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.29 ft. BTOC Total Well Depth: 33 ft. BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.66 gal

Screen : 30-33 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1207	Start	25.06	7.38	.809	4.5	.39	-183.4	.36	.53	Clear	none
1214	.5	25.09	7.40	.805	5.3	.39	-171.3	.28	.52	〃	〃
1221	1.0	25.07	7.48	.795	2.7	.39	-168.7	.22	.52	〃	〃
1228	1.5	25.15	7.52	.795	2.4	.39	-161.3	.21	.52	〃	〃

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003B-031.5-201202 15 Time Collected: ~~1227~~ (1228) - 1257 Comments: VOC & nBA, VFA, Br & I, TOC, MES

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

QC LC34-BW0003B-031.5-20120215

Br, I - 1 Bottle, 1L, 150 mL, None

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: D. Seamore

Station (Well ID): BW00036 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1129 Time @ End of Purging: 1150 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 5.15 ft. BTOC Total Well Depth: 40 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.8 gal

Screen : 37-40 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1129	Start	26.32	6.82	.880	5.9	.83	-224.4	2.79	.98	Clear	none
1136	.5	24.90	7.44	1.147	4.8	.57	-237.5	.23	.75	"	"
1143	1.0	24.98	7.48	1.183	8.4	.64	-195.4	.18	.84	"	"
1150	1.5	24.99	7.50	1.189	7.9	.64	-199.2	.17	.84	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW00036-038.5-201202 15

Sample ID: _____ Time Collected: 1150-1206 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, DHC & verA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Duplicate (Alkalinity): LC34-FD-261202 15 - 0 2

QC LC34-BW00036-038.5-201202 15
Sulfide - 1 Bottle, pH > 250 mL, NAOH

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: D. Seamore

Station (Well ID): BW00030 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1314 Time @ End of Purging: _____ Total Purging Time: _____ Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 5.25 ft. BTOC Total Well Depth: 47 ft. BGS Reference: — Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen : 44-47 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1314	Start	24.73	6.26	2.515	5.0	1.29	-255.9	.36	1.64	Clear	none
1321	.5	24.79	6.55	2.517	2.9	1.29	-280.2	.31	1.65	"	"
1328	1.0	24.93	6.80	2.505	5.7	1.29	-289.1	.16	1.63	"	—
1335	1.5	24.99	6.89	2.522	5.1	1.30	-306.7	.18	1.64	"	"
1346	2.0	25.00	6.90	2.528	5.1	1.30	-313.7	.19	1.65	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW00030-045.5-201202 15

Sample ID: _____ Time Collected: 1340-1405 Comments: VOC, EtBA, VFA, Br, I, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

QC BW00030-045.5-2012 02 15

MEE - 3 bottle CG, 40mL, HCL

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1055 Time @ End of Purging: 1110 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 6.31 ft. BTOC Total Well Depth: 57 ft.BGS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal

Screen : 47-57 ft.BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1055	Start	23.57	8.98	2.525	2.44	1.30	-239.0	2.12	1.642	clear	
1105	1.0	23.96	8.96	2.543	0.72	1.31	-255.7	0.59	1.652	"	
1107	1.2	23.96	8.94	2.541	0.79	1.31	-256.5	0.55	1.651	"	
1110	1.5	23.99	8.82	2.540	0.64	1.31	-254.9	0.49	1.651	"	
		*	pH probe malfunctioning.								

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20120214 Time Collected: 1110 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MeE, Anions, Alkalinity, Dissolved Metals, Diss & vers A

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 62 + 0.25 = 0.34 gal

Duplicate (Dissolved Metals): LC34-FD-20120214-02

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Sizemore

Station (Well ID): TW0002D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1305 Time @ End of Purging: 1333 Total Purging Time: 28 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 6.28 ft. BTOC Total Well Depth: 55 ft.BLS Reference: — Well diameter: 2 in. Volume in well: 8.9 gal

Screen : 50-55 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1305	Start	25.79	7.01	2.623	—	1.35	-279.5	.68	1.70	Clear	none
1312	.5	25.50	7.23	2.575	28.6	1.33	-314.2	.57	1.68	"	"
1319	1.0	25.24	7.05	2.581	9.4	1.33	-301.9	.39	1.68	"	"
1326	1.5	25.26	7.07	2.581	4.8	1.33	-285.9	.38	1.68	"	"
1033	2.0	25.14	7.07	2.590	3.8	1.34	-307.9	.31	1.69	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-TW0002D1-0525-20120216 Time Collected: 1333 - 1349 Comments: VOC & BA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

QC LC34-TW0002D1-0525-20120216
VOC & NBA - 3 Bottles, 40mL, CG, UMBRS.

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Sizemore

Station (Well ID): BW0001E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1115 Time @ End of Purging: 1136 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 5.79 ft. BTOC Total Well Depth: 54 ft. BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.1 gal

screen : 51-54 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1115	Start	25.74	7.59	2.647	7.2	1.36	-281.9	1.89	1.69	clear	none
1122	.5	25.19	7.47	2.622	4.1	1.30	-313.1	.33	1.64	"	"
1129	1.0	25.20	7.46	2.520	3.5	1.30	-297.6	.28	1.64	"	"
1136	1.5	25.23	7.47	2.520	2.3	1.30	-299.6	.26	1.64	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001E-0525-201202 16 Time Collected: 1136-1147 Comments: VOC & NBA, VFA, Br & F, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals, DHC & VCHA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/16/12 Sampled By: D. Sizemore

Station (Well ID): BW0001F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: _____

Time @ Start of Purging: 1035 Time @ End of Purging: 1103 Total Purging Time: 28 min. Depth of Pump or Intake Tubing: 0595.5 ft. (BTOC)

Water Level: 6.49 ft. BTOC Total Well Depth: 61 ft. BGS Reference: — Well diameter: 3/4 in. Volume in well: 1.2 gal

Screen : 58-61 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1035	Start	24.97	6.87	2.531	4.5	1.30	-275.4	1.37	1.65	Clear	none
1042	.5	25.04	7.08	2.536	3.4	1.30	-269.5	.34	1.65	"	"
1049	1.0	25.00	7.29	2.534	4.0	1.30	-271.1	.34	1.65	"	"
1056	1.5	25.11	7.26	2.531	1.5	1.30	-270.6	.32	1.64	"	"
1103	2.0	25.10	7.25	2.531	0.93	1.30	-267.1	.30	1.64	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001F-0595-201202 16 Time Collected: 1103 - 1112 Comments: VOC & nBA, VFA, Br & I, TOC, Sulfide, MEE, Anions, Alkalinity, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: D.S. Lemore

Station (Well ID): BW0002E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1259 Time @ End of Purging: 1326 Total Purging Time: 28 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 6.69 ft. BTOC Total Well Depth: 54 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.1 gal

Screen : 51-54 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1258	Start	25.23	7.95	2.536	39.5	1.31	-233.6	.15	1.65	Clear	none
1312	1.0	25.25	7.64	2.543	2.43	1.31	-231.9	.12	1.65	Clear	"
1319	1.5	25.32	7.63	2.545	1.24	1.31	-260.9	.09	1.66	Clear	"
1326	2.0	25.35	7.65	2.548	1.00	1.31	-265.5	.09	1.66	Clear	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002E-052.5-201202 14 Time Collected: 1326 -1348 Comments: VOC & nBA, VFA, Br & F, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: D. Sizemore

Station (Well ID): BW0002F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: 3.71 Durham

Time @ Start of Purging: 1217 Time @ End of Purging: 1245 Total Purging Time: 28 Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 5.71 ft. BTOC Total Well Depth: 61 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.2 gal

Screen : 58-61 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1217	Start	25.11	7.29	2.613	0.84	1.34	-269.1 ~~+109~~	.31	1.69	Clear	none
1231	1.0	24.93	7.69	2.579	0.95	1.33	-182.6	.12	1.68	"	
1238	1.5	24.98	7.72	2.585	1.02	1.33	-203.9	.11	1.68	Clear	
1245	2.0	24.95	7.71	2.586	0.75	1.33	-204.0	.11	1.68	Clear	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002F-059.5-201202 14 Time Collected: (1245) - 1256 Comments: VOC & nBA, VFA, Br & F, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: D. Sizemore

Station (Well ID): BW00032 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1406 Time @ End of Purging: ~~1410~~ 1427 Total Purging Time: 21 Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 5.55 ft. BTOC Total Well Depth: 54 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.1 gal

Screen : 51-54 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1406	Start	25.09	4.91	2.183	—	1.12	-132.9	3.26	1.45	Clear	none
1413	.5	25.03	6.85	2.530	3.5	1.30	-295.9	.27	1.64	"	"
1420	1.0	25.04	6.84	2.535	3.0	1.31	-284.3	.27	1.66	"	"
1427	1.5	25.05	6.84	2.559	2.7	1.32	-299.8	.19	1.67	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00032-052.5-20120215 Time Collected: 1427 - 1441 Comments: VOC & NBA, VFA, Br & I, TOC, MEE, ~~VC A & D~~ DHC & VC A

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: D. Siemon

Station (Well ID): BW 0003F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Orion

Time @ Start of Purging: 1442 Time @ End of Purging: 1503 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 5.23 ft. BTOC Total Well Depth: 61 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.2 gal

Screen : 58-61 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1442	Start	24.95	6.32	2.586	—	1.33	-283.6	.38	1.69	Clear	none
1449	.5	24.95	6.86	2.601	7.2	1.34	-269.5	.32	1.69	"	"
1456	1.0	24.93	6.89	2.612	1.6	1.35	-316.3	.24	1.70	"	"
1503	1.5	24.94	6.88	2.612	.96	1.35	-269.5	.15	1.70	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003F-059.5-20120215 Time Collected: 1503 Comments: VOC's nBA, VFA, Br & I, TOC, M22

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: J. Bartlett

Station (Well ID): IW0076 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1432 Time @ End of Purging: 1453 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 075.0 ft. (BTOC)

Water Level: 6.14 ft. BTOC Total Well Depth: 80 ft.BLS Reference: — Well diameter: 2 in. Volume in well: 13.0 gal

Screen : 70-80 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1432	Start	25.21	5.33	0.991	12.7	0.49	50.0	2.46	0.635	clear	
1442	1.0	24.82	6.09	2.060	9.87	1.05	-19.0	0.57	1.354	"	
1445	1.3	24.89	6.75	2.289	20.8	1.17	-46.4	0.54	1.491	"	
1449	1.7	24.96	7.05	2.367	19.9	1.21	-59.1	0.51	1.540	"	
1451	1.9	24.98	7.07	2.382	17.8	1.22	-61.5	0.52	1.549	"	
1453	2.1	24.98	7.12	2.392	16.4	1.23	-62.8	0.51	1.556	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0076-075.0-20120215 Time Collected: 1453 Comments: VOC & NBA, VFA, Bc & I, TOC, M22, Dissolved Metals

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.37 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 * 85 + 0.25 = 0.37 gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: J. Barthelt

Station (Well ID): IW00670 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: _____

Time @ Start of Purging: 1400 Time @ End of Purging: 1415 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 5.22 ft. BTOC Total Well Depth: 43 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.86 gal

Screen : 38-43 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1400	Start	24.20	8.39	2.540	40.0	1.31	-196.6	2.15	1.651	clear	
1410	1.0	24.23	8.53	2.543	2.43	1.31	-230.4	0.44	1.653	"	
1412	1.2	24.32	8.54	2.543	1.95	1.31	-239.9	0.36	1.653	"	
1415	1.5	24.34	8.52	2.542	1.58	1.31	-240.1	0.33	1.652	"	
			* pH probe malfunctioning								

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW00670-040.5-20120214 Time Collected: 1415 Comments: VOCs, nBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 48 + 0.25 = 0.32 gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: J. Bartlett

Station (Well ID): ~~IW 007101~~ 67 01 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1323 Time @ End of Purging: 1346 Total Purging Time: 23 min Depth of Pump or Intake Tubing: ~~070~~ 68 0 ~~68.0~~ ft. (BTOC)

Water Level: 5.14 ft. BTOC Total Well Depth: ~~75~~ 73 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.5 gal

Screen: ~~65-75~~ 68-73 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1323	Start	24.08	7.78	2.589	703	1.34	-53.4	1.10	1.682	white	
1333	1.0	24.12	7.69	2.577	181	1.33	-58.2	0.39	1.675	"	
1338	1.5	24.11	7.65	2.576	36.6	1.33	-58.3	0.45	1.674	clear	
1342	1.9	24.06	7.66	2.577	17.9	1.33	-62.6	0.41	1.674	"	
1344	2.1	24.10	7.65	2.575	13.3	1.33	-63.1	0.40	1.674	"	
1346	2.3	24.05	7.63	2.575	9.74	1.33	-60.2	0.39	1.674	"	
			* pH probe malfunctioning								

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW 007~~101~~ ~~070.0~~ 068.0 - 201202 14

Sample ID: 0701 - 068.0 Time Collected: 1346 Comments: VOC, HMBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.37 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 80 + 0.25 = 0.37 gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: J. Bartlett

Station (Well ID): IW00701D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1155 Time @ End of Purging: 1210 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 4.91 ft. BTOC Total Well Depth: 43 ft.BGS Reference: — Well diameter: 3/4 in. Volume in well: 0.86 gal

Screen : 38-43 ft.BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1155	Start	25.22	7.62	2.429	27.7	1.25	-121.0	1.03	1.587	clear	
1205	1.0	25.16	7.74	2.538	8.35	1.31	-160.3	0.30	1.649	"	
1207	1.2	25.18	7.73	2.539	6.02	1.31	-166.1	0.28	1.651	"	
1210	1.5	25.16	7.73	2.539	5.73	1.31	-169.9	0.30	1.650	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW00701D-040.5-201202 15 Time Collected: 1210 Comments: VOC & nBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 4.8 + 0.25 = 0.32 gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: J. Bartlett

Station (Well ID): IW007001 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1123 Time @ End of Purging: 1138 Total Purging Time: 15 min Depth of Pump or Intake Tubing: @ 70.0 ft. (BTOC)

Water Level: 5.10 ft. BTOC Total Well Depth: 75 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 1.5 gal

Screen : 65-75 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1123	Start	25.07	7.57	1.919	23.0	1.03	-60.1	2.02	1.377	clear	
1133	1.0	25.01	7.66	2.558	5.27	1.32	-18.4	0.42	1.664	"	
1135	1.2	24.99	7.66	2.568	3.12	1.32	-18.5	0.34	1.669	"	
1138	1.5	24.97	7.67	2.569	3.01	1.32	-24.4	0.31	1.670	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW007001-070.0-20120215 Time Collected: 1138 Comments: VOC & nBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.37 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 K 0.035 x 80 + 0.25 = 0.37 gal

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/15/12 Sampled By: J. Bartlett

Station (Well ID): TW0071D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other), X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1043 Time @ End of Purging: 1058 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 2.85 ft. BTOC Total Well Depth: 43 ft.BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.86 gal

Screen : 38-43 ft.BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1043	Start	23.06	7.39	2.055	7.16	1.05	-109.9	1.21	1.352	clear	
1053	1.0	23.33	7.05	2.279	1.36	1.17	-88.9	0.25	1.482	"	
1055	1.2	23.37	7.06	2.282	0.90	1.17	-87.8	0.29	1.483	"	
1058	1.5	23.41	7.06	2.283	0.57	1.17	-87.9	0.31	1.484	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-TW0071D-040.5-20120215 Time Collected: 1058 Comments: VOC & nBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 48 + 0.25 = 0.32 gal

QC: VOC (3 vials)

Monitor Well Sampling

Site: LC 34 Project No.: TR0272A Task: 38 Date: 2/14/12 Sampled By: J. Bartlett

Station (Well ID): ~~FW006701~~ 7101 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: ___

Time @ Start of Purging: 1439 Time @ End of Purging: 1454 Total Purging Time: 15 min Depth of Pump or Intake Tubing: ~~068.0~~ 070.0 ft. (BTOC)

Water Level: 2.97 ft. BTOC Total Well Depth: 73 ft. BGS Reference: — Well diameter: 3/4 in. Volume in well: 1.5 gal

Screen: 63-73 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1439	Start	23.11	8.23	1.879	37.7	0.98	-159.2	1.41	1.287	clear	
1449	1.0	23.14	7.69	2.483	2.79	1.28	-84.7	0.36	1.615	"	
1451	1.2	23.15	7.66	2.488	1.85	1.28	-79.6	0.30	1.617	"	
1454	1.5	23.17	7.68	2.492	1.76	1.28	-73.4	0.27	1.620	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-FW00~~6701-0680~~-20120214 (7101-070.0) Time Collected: 1454 Comments: VOCs, nBA, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.36 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

0.041 x 0.035 x 78 + 0.25 = 0.36 gal

Geosyntec consultants

DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: TR0272
Contractors: GPE

Date: 2/15/12
Task No.:

Work Performed

Well Installation:
Soil Borings: DPT 346, 347 & 348
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0725 Met drillers @ Badging Station, mob to Site.
0745 Arrive Site; PMS Conducts tailgate meeting w/ Safety discussion. Drillers decon & Set up DPT 346.
1006 DPT 346 Complete; decon & Set up on DPT 347.
1145 DPT 347 Complete; decon & Set up on DPT 348
1424 DPT 348 Complete; Drillers begin grouting 3 Soil borings & Cleaning up Site.
1539 Drillers have grouted all Boreholes & have Cleaned up Site. PMS Begins Securing drum pallet; Drillers depart Site.
1600 PMS departs Site.

Plans/Future Activities

2/3/12
Signature/Date

Geosyntec consultants

BORING LOG

DMS 348

BORING NO.: ~~DPT 334-337~~ PROJECT NO.: TR0272 PAGE 1 OF 1

SITE: LC34 DATE: 2/13/12

TOOLS AND METHOD: Macro Core BIT DIA: 2.4

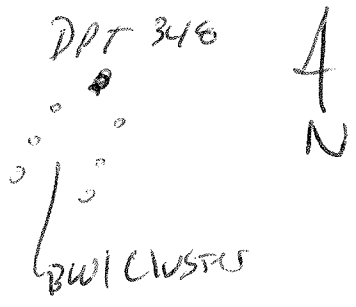
TOTAL DEPTH: 60 GROUNDWATER DEPTH: ~~7672DPT~~

DRILLING COMPANY: GPI RIG: Geoprobe

DRILLERS: Nick Bischof Scott Nelson LOGGERS: DMS

1240
1424

BOREHOLE LOCATION MAP

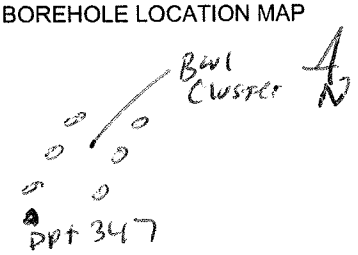


LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Grey Silty fine to med. SAND w/ frag. Shell (~5%)	Macro Sample	31	2.6	
		32	7.1	
		33	2.4	
		34	5.4	Collect grab sample @ 1250 - DPT 348 - 034.5 for 8260
		35	4.8	
		36	2.9	
-- Same	Macro Sample	37	11.1	Grab sample collected @ 1300 - DPT 348 - 037.0 for 8260
		38	10.8	
		39	6.5	
		40	4.3	Grab sample collected @ 1311 - DPT 348 - 040.0 for 8260
-- Same	Macro Sample	41	7.7	
		42	8.2	
		43	6.6	
		44	7.5	
-- Grey CLAY w/ frag. shell (~1%) below 45.5'		45	5.1	Grab sample collected @ 1312 - DPT 348 - 045.5 for 8260
		46	4.9	
	Macro Sample	47	3.2	Grab sample collected 1321 - DPT 348 - 047.0 for 8260
		48	10.1	
-- Grey silty Med Sand w/ some frag. shell (~5%) below 49'		49	9.6	Grab sample collected @ 1320 - DPT 348 - 048.5 for 8260
		50	4.3	
		51	2.1	
	Macro Core	52	1.5	
		53	0.9	Grab Sample collected @ 1345 - DPT 348 - 053.0 for 8260
		54	0	
		55	0	
-- Same		56	0	
	Macro Core	57	0	
		58	0	
		59	0	
		60	0	Boring terminated @ 60' and abandoned w/ Grout

Geosyntec consultants

BORING LOG

BOREHOLE LOCATION MAP



BORING NO.: ~~DPT 333~~ 347 PROJECT NO.: TN0272 PAGE 1 OF 1

SITE: LC34 DATE: 2/13/12

TOOLS AND METHOD: 2 ½" DIA Macro Core BIT DIA: 2 ½

TOTAL DEPTH: 60' GROUNDWATER DEPTH:

DRILLING COMPANY: GPF RIG: GeoProbe 7822 DT

DRILLERS: Nick Bishop, Scott Nelson LOGGERS: DMS

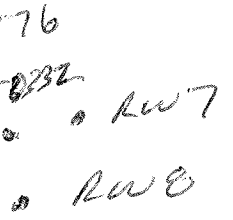
1026
1146

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Grey fine to med SAND w/ fragment of shell (~5%)	Macro Core	31	0	
		32	0	
		33	0	
		34	0	
		35	0	
	Macro core	36	1.9	
		37	6.3	-- Grab sample collected @ 1035 DPT 0347-037.0 for 8260
		38	2.4	
		39	3.5	
-- No recovery 40'-45' 0.0' ~~Sign of recovery~~ 4.0' Residual shell & fine Sand ~~on~~ in core Sampler		40	6.2	-- Grab sample collected @ 1045 - DPT 0347-040.0 for 8260 and DHC
		41	7.1	
	Macro Core	42	2.4	
		43	5.1	
		44	3.7	
-- Grey ~~clay~~ CLAY w/ fragmented shell (~1%), med plasticity		45	2.8	-- Grab sample collected @ 1055 - DPT 0347-045.5 for 8260 and DHC
	Macro Core	46	5.9	
		47	3.5	-- Grab sample collected @ 1107 - DPT 0347-047.0 for 8260 and DHC
		48	2.1	
		49	4.8	
-- Grey silty fine SAND w/ fragmented shell (5%-10%)		50	11.2	-- Grab sample collected @ 1115 - DPT 0347-050.0 for 8260 and DHC
	Macro Core	51	1.2	
		52	0.9	Grab sample collected @ 1126 - DPT 0347-050.5 for 8260
		53	0.2	
		54	0	
-- Same		55	0	Grab sample collected @ 1135 - DPT 0347-050.5 for 8260 and DHC
	Macro Core	56	0	
		57	0	
		58	0	
		59	0	
		60	0	
				Boring terminated @ 60' and abandoned w/ grout

Geosyntec consultants

BORING LOG

BOREHOLE LOCATION MAP



BORING NO.: DPT ~~330~~ 0346 PROJECT NO.: TR0272 PAGE 1 OF 1

SITE: LC34 DATE: 2/13/12

TOOLS AND METHOD: 2¼" Dia Macro Core BIT DIA: 2¼

TOTAL DEPTH: 60' GROUNDWATER DEPTH:

DRILLING COMPANY: GPI RIG: Geoprobe 7822DT

DRILLERS: Nick Bishop, Scott Nelson LOGGERS: DMS

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Gray fine to med. SAND w/ fragmented shell (SP)	Macro Sample	31	0	
		32	0	
		33	1.2	
		34	3.9	
		35	2.4	
	Macro Sample	36	3.1	
		37	2.5	-- Grab Sample Collected @ 0945 - DPT 0346-37.0 for 8260
		38	11.0	
		39	9.3	
	Macro Sample	40	24.1	-- Grab Sample Collected @ 0858 - DPT 0346-40.0 for 8260 and DHC
		41	12.3	
		42	6.5	
	Macro Sample	43	7.3	-- Grab Sample Collected @ 909 DPT 0346-43.5 for 8260 and DHC
-- Gray Sandy CLAY w/ med. plasticity below 44'		44	11.9	
		45 *	7.6	Grab Sample Collected @ 930 - DPT 0346-046.5 for 8260 and DHC
		46	6.3	
	Macro Sample	47	4.9	
		48	5.4	-- Grab Sample Collected @ 942 ~~for 8260~~ DPT 0346-048.0 for 8260 and DHC
-- Gray Silty fine SAND below 49'		49	2.3	
		50	7.9	
		51	8.2	
	Macro Sample	52	1.4	
		53	0	-- Grab Sample Collected @ 0953 - DPT 0346-053.0 for 8260 and DHC
-- Same		54	0.1	
		55	0	-- Grab Sample Collected @ 1006 DPT 0346-055.0 for 8260
		56	0	
-- Same		57	0	
	Macro Sample	58	0	
		59	0	
		60	0	
				Boring term. @ 60' and abandoned w/ grout
				* Grab Sample Collected @ 919 DPT 0346-045.0 for 8260

Geosyntec Consultants
Water Quality Instrument Calibration Form

P005523

Project/Site: L139 Project #: ~~E0-05108~~ Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 04K16614 AE Turbidimeter - Model/Serial # HACH 2100Q / 10110C006399

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		3/15/12	1324	26.80	~~8.203~~ 8.114	8.05/8.11	99.2/100.0	P F
CAL ICV CCV		3/16/12	0846	23.73	8.466	8.35	102	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		3/15/12	1335	1.413	9373	12-2012	1.448/1.413	P F
CAL ICV CCV		3/16/12	0903	"	"	"	1.378	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		3/15/12	1327	4.0	2111380	10-2013	3.91/4.00	P F
CAL ICV CCV		↓	↓	7.0	2110532	10-2013	7.01/7.00	P F
CAL ICV CCV		↓	↓	10.0	2101366	07-2012	9.96/10.00	P F
CAL ICV CCV		3/16/12	0858				7.07	P F
CAL ICV CCV		↓	↓	"	"	"	3.97	P F
CAL ICV CCV		↓	↓				9.99	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		3/15/12	1340	240 @ 25	3354	06-2016	240.4/240.0	P F
CAL ICV CCV		3/16/12	0907	"	"	"	241.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 1.8 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	3/15/12	9.74	(P) F
CAL ICV (CCV)	3/16/12	9.34	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL (ICV) CCV	3/15/12	19.5	(P) F
CAL ICV (CCV)	3/16/12	20.2	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	3/15/12	98.4	(P) F
CAL ICV (CCV)	3/16/12	101	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL (ICV) CCV	3/15/12	796	(P) F
CAL ICV (CCV)	3/16/12	799	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: ~~FO0510B~~ FO5528 Task: 17+0 Date: ~~5~~ 3/15/12 Sampled By: J. Bartelt

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1417 Time @ End of Purging: 1431 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 8.29 ft. BTOC Total Well Depth: 57 ft. BLS Reference: — Well diameter: 6 in. Volume in well: 84 gal

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1417	Start	26.00	7.42	2.391	2.64	1.23	-249.7	1.21	1.557	clear	
1427	1.0	25.83	7.53	2.460	0.74	1.26	-234.9	0.34	1.600	"	
1429	1.2	25.83	7.52	2.476	0.82	1.27	-226.6	0.36	1.610	"	
1431	1.4	25.86	7.52	2.494	0.76	1.28	-232.0	0.38	1.622	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-052.0-20120315

Sample ID: _____ Time Collected: 1431 Comments: VOC in BA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= — gal

(0.041)(0.035)(62) + 0.25 = 0.34 gal

Monitoring Well Sampling

RO 05528

Site: LC34 Project No.: ~~F0 05108~~ Task: 1740 Date: 3/15/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1352 Time @ End of Purging: 1406 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 5.79 Ft. BTOC Total Well Depth: 42 Ft. BLS Reference: — Well diameter: 6 in. Volume in well: 62 gal.

Screen: 35 - 42 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1352	Start	25.43	7.67	1.053	7.18	0.51	-227.8	0.61	0.670	clear	
1402	1.0	25.60	7.78	0.797	5.45	0.39	-224.7	0.41	0.518	"	
1404	1.2	25.66	7.78	0.795	5.83	0.39	-227.6	0.34	0.517	"	
1406	1.4	25.65	7.78	0.794	5.63	0.39	-221.6	0.32	0.516	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0007-038.5-20120315

Sample ID: _____ Time Collected: 1406 Comments: VOC + NBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= — gal

(0.041)(0.035)(47) ℓ 0.25 = 0.32 gal

Geosynte[illegible]onsultants

Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: FO 05528 Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 06D2138AL Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen

DEP SOP FT 1500

Acceptance Criteria: +/-0.3mg/L

	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
CAL ICV CCV	4/19/12	0805	23.01	~~9.32~~ 8.578	9.32/8.58	108.6/100.0	P F
CAL ICV CCV	"	~~1513~~	25.70	8.158	7.49	91.9	P F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance

DEP SOP FT 1200

Acceptance Criteria: +/- 5%

	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
CAL ICV CCV	4/19/12	0815	1.413	8809	02-2012	1.456/1.413	P F
CAL ICV CCV	"	1530	"	"	"	1.391	P F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F

pH

DEP SOP FT 1100

Acceptance Criteria: +/-0.2 SU

	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
CAL ICV CCV	4/19/12	0808	4.0	0110969	11-2012	4.00/4.00	P F
CAL ICV CCV	↓	↓	7.0	1081800	08-2013	7.15/7.00	P F
CAL ICV CCV	↓	↓	10.0	2101326	07-2012	9.94/9.99	P F
CAL ICV CCV	"	1525				4.13	P F
CAL ICV CCV	↓	↓	"	"	"	7.03	P F
CAL ICV CCV	↓	↓				9.94	P F

ORP

SOP N/A

Geosyntec Acceptance Criteria: +/- 5%

	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
CAL ICV CCV	4/19/12	0818	229@25	1061713	06-2012	203.6/229.0	P F
CAL ICV CCV	"	1532	"	"	"	232.7	P F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance Probe Cleaned? Yes (No)

Disolved Oxygen membrane Changed? Yes (NO)

0.1 - 10 NTU

Std 10 NTU

Acceptance Criteria: +/- 10%

	Date	Reading (NTU)	Pass or Fail
CAL (ICV) CCV	4/19/12	10.8	P F
CAL ICV (CCV)	"	10.7	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU

Std 20 NTU

Acceptance Criteria: +/- 8%

	Date	Reading (NTU)	Pass or Fail
CAL (ICV) CCV	4/19/12	18.6	P F
CAL ICV (CCV)	"	21.2	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU

Std 100 NTU

Acceptance Criteria: +/- 6.5%

	Date	Reading (NTU)	Pass or Fail
CAL (ICV) CCV	4/19/12	93.5	P F
CAL ICV (CCV)	"	104	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU

Std 800 NTU

Acceptance Criteria: +/- 5%

	Date	Reading (NTU)	Pass or Fail
CAL (ICV) CCV	4/19/12	747	P F
CAL ICV (CCV)	"	814	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments: Failed DO CCV qualified J3

Geosyntec consultants

Monitoring Well Sampling

Site: LG34 Project No.: FO 0552B Task: 17*0 Date: 4/19/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1054 Time @ End of Purging: 1112 Total Purging Time: 18 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 6.84 ft. BTOC Total Well Depth: 42 ft. BLS Reference: — Well diameter: 6 in. Volume in well: 61.7 gal

Screen: 35-42 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1054	Start	24.59	7.31	2.192	7.92	1.12	-212.9	1.86	1.422	clear	
1104	1.0	24.68	7.50	2.054	5.06	1.05	-235.8	1.16	1.334	"	
1109	1.5	24.56	7.48	2.050	3.32	1.04	-232.9	1.15	1.332	"	
1112	1.8	24.67	7.46	2.043	3.56	1.04	-234.1	1.10*	1.328	"	

qualified with * Failed DO/CCV. JB

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LG34-RW0007-038.5-20120419 Time Collected: 1112 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=___ gal

(0.041)(0.035 x 47) + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 17*0 Date: 4/19/12 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1125 Time @ End of Purging: 1141 Total Purging Time: 16 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 12.07 ft. BTOC Total Well Depth: 57 ft. BLS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1125	Start	24.81	7.17	2.516	123	1.30	-174.9	2.41	1.630	gray	
1135	1.0	24.30	7.67	2.412	1.63	1.24	-215.8	1.07	1,568	clear	
1137	1.2	24.66	7.65	2.408	1.35	1.24	-218.4	0.99	1,566	"	
1139	1.4	24.67	7.66	2.416	1.14	1.24	-218.5	1.07	1,571	"	
1141	1.6	24.52	7.65	2.418	0.90	1.24	-219.5	1.08*	1.571	"	

qualified with
* Failed DO CCV.
JKS

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-052.0-20120419

Sample ID: _____ Time Collected: 1141 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=— gal

(0.041)(0.035*62)+(0.25) = 0.34 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LCB4 | Project #: FO552B | Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D2373 AK | Turbidimeter - Model/Serial #: HACH 2100Q / 1102C00755?

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
(CAL) (ICV) CCV		5/17/12	0728	22.89	8.545	7.11/8.54	82.5/100.0	P F
CAL ICV (CCV)		"	1103	24.96	8.325	7.22	86.4	P (F)
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		5/17/12	0754	1.413	9573 ~~8804~~	12-2012	1.246/1.413	P F
CAL ICV (CCV)		"	1113	"	"	"	1.426	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
(CAL) (ICV) CCV		5/17/12	0734	4.0	0110969	11-2012	2.98/4.00	(P) F
CAL (ICV) CCV		↓	↓	7.0	100 1860	08-2013	5.90/7.00	(P) F
CAL ICV CCV				10.0	210 1326	07-2012	8.91/10.00	(P) F
CAL ICV (CCV)			1107				7.15	P (F)
CAL ICV (CCV)		"	↓	"	"	"	9.45	(P) F
CAL ICV (CCV)							10.60	P (F)

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) (ICV) CCV		5/17/12	0754	240 @ 25	3354	06-2016	226.6/240.0	(P) F
CAL ICV (CCV)		"	1115	"	"	"	237.9	(P) F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) (ICV) CCV	5/17/12	9.31	(P) F
CAL ICV (CCV)	"	11	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) (ICV) CCV	5/17/12	22.5	(P) F
CAL ICV (CCV)	"	21.4	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) (ICV) CCV	5/17/12	100	(P) F
CAL ICV (CCV)	"	106	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) (ICV) CCV	5/17/12	817	(P) F
CAL ICV (CCV)	"	804	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes (No) | Disolved Oxygen membrane Changed? Yes (No)

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Comments: * Failed DO CCV qualified with 2b

* Failed pH CCV qualified with J3

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 17*0 Date: 5/17/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 0840 Time @ End of Purging: 0854 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 6.49 ft. BTOC Total Well Depth: 42 ft BGS Reference: ~ Well diameter: 6 in. Volume in well: 8.8 gal.

Screen: 35-42 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0840	Start	23.87	10.32	2.099	5.11	1.07	-280.7	2.96	1.359	clear	
0850	1.0	24.04	10.51	2.064	1.57	1.05	-308.3	1.59	1.342	"	
0852	1.2	24.05	10.52	2.073	2.11	1.06	-309.8	1.57	1.351	"	
0854	1.4	24.13	*10.54	2.090	1.31	1.07	-311.7	*1.58	1.359	"	
			qualified with					qualified with			
			*Failed pH CCV.					*Failed DO CCV.			
			JB					JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0007-038.5-20120517

Sample ID: _____ Time Collected: 0854 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=___ gal

0.041 x 0.035 x 47 + 0.25 = 0.32 gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 17 Y0 Date: 5/17/12 Sampled By: J. Bartlett

Station (Well ID): RW000B Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 0902 Time @ End of Purging: 0916 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 8.11 ft BTOC Total Well Depth: 57 ft. BLS Reference: - Well diameter: 6 in. Volume in well: 94 gal.

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0902	Start	23.91	10.51	2.580	117	1.32	-308.7	2.74	1.662	gray	
0912	1.0	23.84	10.69	2.466	1.83	1.27	-316.2	1.74	1.603	clear	
0914	1.2	23.85	10.69	2.464	2.42	1.27	-318.9	1.71	1.602	"	
0916	1.4	23.83	*10.69	2.466	2.35	1.27	-319.5	*1.55	1.603	"	
			qualified	with				qualified	with		
			~~*Failed~~	pH CCV				~~*Failed~~	DO CCV.		
			JB					JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW000B-052.0-20120517 Time Collected: 0916 Comments: VOC + nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=____gal

0.041 x 0.035 x 62 + 0.25 = 0.34 gal

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DAILY FIELD REPORT

Page 1 of 1

Project: LC34
Project No.: FO 0552B
Contractors:

Date: 6/26/12
Task No.: 1.8.1

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: X
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0700: J. Bartlett, D. Sizemore R. Donahue at office. Calibrate instruments, load vehicle, Travel to site
0830: on site. Shut recirc. system off. Begin sampling. For details, refer to Monitoring Well sampling forms.
1500: off site. Travel back to office
1530 Unload vehicles. ~~load~~ pack samples for shipment. Calibrate instruments. (CCV)
1730: End of day.

Plans/Future Activities

6/26/12
Signature/Date

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DAILY FIELD REPORT

Page 1 of 1

Project: FL0552B
Project No.: LC34
Contractors: N/A

Date: 6/26/12
Task No.: 1801

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: BW0001A-F, IW0016-21
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

730 - met @ office + calibrated YSI + hach
810 - left office
840 - arrived @ site
850 - began purging BW0001A *
922 - began purging BW0001B *
1016 - began purging BW0001C *
1050 - began purging BW0001D *
1126 - began purging BW0001E *
1155 - began purging BW0001F *
1220 - lunch
1310 - began purging ~~BW0001~~ Red 6/25 IW0001 IW0076. *
1355 - began purging IW0002I *
1500 - left site

Plans/Future Activities

* = see sampling forms for sampling details.

6/26/12
Signature/Date

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DAILY FIELD REPORT

Page 1 of 1

Project: LCSH
Project No.: FOO552B
Contractors: N/A

Date: 6/27/12
Task No.: 1.04

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells: BW00003A-F
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

0750 - arrive at office + calibrate YSI + Hach
0830 - leave office, get gas, travel to site
935 - began purging BW00003A*
1004 - began purging BW00003B*
1038 - began purging BW00003C*
1110 - began purging BW00003D*
1151 - began purging BW00003E*
1200 - lunch
1302 - began purging BW00003F*
1330 - began cleaning up, packing up car, disposed of IDW
1410 - sampled drum 188680
1420 - IDW QC checklist
1445 - left site
1630 - FedEx picked up coolers
1640 - calibration verification

Plans/Future Activities

* = See sampling form for sampling details

6/27/12
Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: FR0552B Field Personnel: R. Donahue

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05F1342AE Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		6/26/12	736	22.47	8.47→8.48	11.59→8.50	136.7→100.2	P F
CAL ICV (CCV)		6/26/12	1637	24.41	8.356	6.18	73.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
							Acceptance Criteria: +/- 5%	
(CAL) ICV CCV		6/26/12	805	1.413	9313	10-2012	1.248→1.463	P F
CAL ICV (CCV)		6/26/12	1053	1.413	9313	10-2012	1.409	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
							Acceptance Criteria: +/-0.2 SU	
CAL ICV CCV		6/26/12	740	4.0	10 B 1960	8/30/13	4.669→4.00	P F
CAL ICV CCV			747	7.0	0110 B69	11-2012	6.997→7.00	P F
CAL ICV CCV			755	10.0	2101326	07-2012	9.997→10.0	P F
CAL ICV (CCV)			1641	4.0	10 B 1960	8-2013	4.12	P F
CAL ICV (CCV)			1645	7.0	0110 B69	11-2012	6.82	P F
CAL ICV (CCV)			1650	10.0	2101326	05-2013	9.55	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
(CAL) ICV CCV		6/26/12	909	240 @ 25	E131	04-2016	245.5→240	P F
CAL ICV (CCV)		6/26/12	1058	240 @ 25	2981	06-2016	232.4	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (NO) Disolved Oxygen membrane Changed? Yes (NO)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
(CAL) ICV CCV	6/26/12	10.10	P F
CAL ICV (CCV)	6/26/12	10.2	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
(CAL) ICV CCV	6/26/12	18.8	P F
CAL ICV (CCV)	6/26/12	20.0	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
(CAL) ICV CCV	6/26/12	102	P F
CAL ICV (CCV)	6/26/12	102	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
(CAL) ICV CCV	6/26/12	823	P F
CAL ICV (CCV)	6/26/12	777	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Comments: 1000+ pH of 10 failed CCV

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings, always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

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Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: ~~J Bartlett~~ JB. LL34 Project #: FO 0552B Field Personnel: J-Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 08A100737 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007537

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		6/26/12	0707	23.83	8.450	8.32 / 8.45	96.5 / 100.0	P F
CAL ICV CCV		6/26/12	1646	25.48	8.203	5.45	66.6	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		6/26/12	0710	1.413	9373	12-2012	1.167 / 1.413	P F
CAL ICV CCV		6/26/12	1755	1.413	9373	12-2012	1.074	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		6/26/12	0717	4.0	0110969	11-2012	4.16 / 4.00	P F
CAL ICV CCV				7.0	1081960	06-2013	6.88 / 7.00	P F
CAL ICV CCV				10.0	2101326	07-2012	9.96 / 10.00	P F
CAL ICV CCV		6/25/12	1648	4.0	0110969	11-2012	~~4.04~~ 3.15	~~P~~ F
CAL ICV CCV				7.0	1081960	06-2013	6.80	P F
CAL ICV CCV				10.0	2101326	07-2012	9.97	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		6/26/12	0714	240 @ 25	2981	01-2016	256.6 / 240.0	P F
CAL ICV CCV		6/26/12	1700	240 @ 25	2981	01-2016	233.6	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 1.0 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL (ICV) CCV	6/26/12	9.40	(P) F
CAL ICV (CCV)	6/26/12	10.9	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL (ICV) CCV	6/25/12	19.7	(P) F
CAL ICV (CCV)	6/25/12	20.6	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL (ICV) CCV	6/25/12	94.4	(P) F
CAL ICV (CCV)	6/26/12	106	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL (ICV) CCV	6/25/12	805	(P) F
CAL ICV (CCV)	6/26/12	784	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments: DO, conductivity ID # of 4.0 qualified ~~failed~~ CCV JB

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Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: FO 0552 B Field Personnel: D. Szemon

Water Quality Meter - Model/Serial #: YSI 556 15101206 Turbidimeter - Model/Serial #

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
~~CAL~~ ICV ~~CCV~~		6/26/12	701	23.79	8.430	8.27-8.45	100.0	P F
~~CAL~~ ICV ~~CCV~~		6/26/12	1732	21.58	8.812	8.81	100.5	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		6/26/12	704	1.413	9373	12/12	1.324-1.412	P F
CAL ~~ICV~~ CCV		6/26/12	1745	1,	"	"	1.419	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
~~CAL~~ ICV CCV		6/26/12	709	4	0110969	11/12	4.04-4.00	P F
~~CAL~~ ICV CCV		↓	~~ONTE~~ 712	7	108196160	8/13	6.95-7.01	P F
~~CAL~~ ICV CCV			716	10	2003216	7/12	10.12-10.07	P F
CAL ICV ~~CCV~~		6/26/12	1733				4.14	P F
CAL ICV ~~CCV~~		↓	1734				7.22	P F
CAL ICV ~~CCV~~			1735				10.14	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
~~CAL~~ ICV ~~CCV~~		6/26/12	719	240@25	3354	6/16	315.1-240.0	P F
~~CAL~~ ICV ~~CCV~~		6/26/12	1744	"	"	"	238.3	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes ~~No~~ Disolved Oxygen membrane Changed? Yes ~~No~~

0.1 - 10 NTU Std 1 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV ~~CCV~~	6/26/12	1.4-1.0	P F
CAL ICV ~~CCV~~	6/26/12	1.1	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
~~CAL~~ ICV ~~CCV~~	6/26/12	9.8-10.0	P F
CAL ICV ~~CCV~~	6/26/12	9.5	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. **See Table FS 2200-2 on the back of this form**

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Comments: ~~10 Each~~ pH 7 CCV.
9ug 1:51 24

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: FB0552B Field Personnel: R. Donahue

Water Quality Meter - Model/Serial #: YSI 556 MPS / 05D 2373 AK Turbidimeter - Model/Serial # Hach2100Q 11080C00755 7

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		6/27/12	Red 0/21 ~~0758~~	23.50	8.498	8.09→8.50	95.0→100.0	P F
CAL ICV CCV		6/27/12	1064	~~23.50~~	7.898	6.64	84.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		6/27/12	712	1.413	9373	10-2012	1.392→1.413	P F
CAL ICV CCV		6/27/12	1650	1.413	9373	10-2012	1.530	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		6/27/12	701	4.0	10818160	8-2012	3.97→4.01	P F
CAL ICV CCV			↓	7.0	0110969	11-2012	6.99→7.00	P F
CAL ICV CCV			↓	10.0	2101326	07-2012	10.19→10.13	P F
CAL ICV CCV		6/27/12	1449	4.0	10818160	8-2012	4.07	P F
CAL ICV CCV		6/27/12	↓	7.0	0110969	11-2012	7.04	P F
CAL ICV CCV		6/27/12	↓	10.0	2101326	07-2012	10.01	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		6/27/12	716	240@25	2981	01-2010	256.6→224.0	P F
CAL ICV CCV		6/27/12	1658	240@25	2981	01-2010	224.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	6/27/12	10.7	P F
CAL ICV CCV	6/27/12	10.4	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	6/27/12	20.1	P F
CAL ICV CCV	6/27/12	21.2	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV	6/27/12	102	P F
CAL ICV CCV	6/27/12	101	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV	6/27/12	799	P F
CAL ICV CCV	6/27/12	791	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Comments: * Entered DO, Conductivity CCV. DO qualified

Geosyntec consultants

Monitoring Well Sampling

Site: LC 34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1311 Time @ End of Purging: 1326 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 5.41 ft BTOC Total Well Depth: 42 ft. BLS Reference: - Well diameter: 6 in. Volume in well: 62 gal.

Screen : 35 - 42 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1311	Start	26.53	7.44	1.972	6.63	1.00	-285.9	2.84	1.291	clear	
1321	1.0	26.40	7.12	2.044	3.79	1.04	-272.9	0.48	1.329	"	
1323	1.2	26.50	7.11	2.054	3.12	1.04	-275.7	0.38	1.337	"	
1326	1.5	26.69	7.12*	2.067*	3.14	1.05	-285.5	0.33*	1.345	"	
								qualified w/ JTS			
				qualified w/ JTS				* DO ~~Failed~~ CCV			
			* pH 4 ~~failed~~ CCV								
				qualified w/ JTS							
				* Cond. ~~failed~~ CCV							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or, Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0007-038.5-2012 0626 Time Collected: 1326 Comments: VOC $ nBA, TOC, MEE, DHE $ VCrA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~ 47)+(flow ~~thru~~ 0.25 vol.)= 0.37 gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: R. Donahue

Station (Well ID): IW0002I Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1355 Time @ End of Purging: 1409 ~~0.1~~ JB Total Purging Time: 14 min Depth of Pump or Intake Tubing: 027.5 ft. (BTOC)

Water Level: 5.61 ft BTOC Total Well Depth: 30 ft. BLS Reference: - Well diameter: 2 in. Volume in well: 4.9 gal

Screen : 25-30 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1355	Start	-	-	-	-	-	-	-	-	-	
1405	1.0	25.28	6.87	0.572	4.58	0.28	-61.6	0.32	0.373	clear	
1407	1.2	25.30	6.67	0.586	2.93	0.28	-66.6	0.32	0.381	"	
1409	1.4	25.26	6.86	0.595 *	3.16	0.29	-80.4	0.32*	0.387	"	
				qualified JB				qualified JB			
				* Cond. ~~failed~~ CCV				* DO ~~failed~~ CCV			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002I-027.5-20120626 Time Collected: 1414 Comments: VOC & mBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.30 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitoring Well Sampling

Site: LC34 Project No.: F0 0552B Task: 18*1 Date: 6/26/12 Sampled By: D. Sizemore

Station (Well ID): IW0002D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1400 Time @ End of Purging: 1419 Total Purging Time: 19 min Depth of Pump or Intake Tubing: 037.5 ft. (BTOC)

Water Level: 5.89 ft BTOC Total Well Depth: 40 ft. BLS Reference: — Well diameter: 2 in. Volume in well: 6.5 gal

Screen 35-40 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1406	~~Start~~ .5	25.45	7.65	.804	6.1	.39	-279.4	.46	.52	Clear	—
1413	1.0	25.46	7.35	.872	6.3	.43	-284.5	.58	.59	"	—
1416	1.3	25.32	7.33	.879	7.5	.47	-293.7	.30	.60	"	—
1419	1.6	25.32	7.32*	.880	1.5	.48	-307.0	.24	.60	"	—
				qualibrated w							
			* pH 7 ~~fcarbon~~ CCV								
				JS							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW0002D-037.5-2012 0626

Sample ID: _____ Time Collected: 1419 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 4 gal

(.0026 * 40) * 3 = .4

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: R. Donahue

Station (Well ID): BW0001A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: durham

Time @ Start of Purging: 850 Time @ End of Purging: 906 Total Purging Time: 16 min. Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.13 ft BTOC Total Well Depth: 26 ft BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen: 23-26 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
850	Start	—	—	—	—	—	—	—	—	—	
900	1.0	23.94	6.85	0.697	4.75	0.34	-95.4	1.67	0.453	dark	
912	1.2	24.00	6.91	0.698	2.56	0.34	-115.1	0.64	0.454	clear	
914	1.4	24.02	6.91*	0.698	1.09	0.34	-116.1	0.60*	0.454	clear	
				qualified w/				qualified w/			
			* pH ID failed CCV JTB					* DO failed CCV JTB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001A-024.5-20120626 Time Collected: 906 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.29 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

↳ only 2 vials (one broke)

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: P. Donahue

Station (Well ID): BW0001B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 922 Time @ End of Purging: 941 Total Purging Time: 1.9 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 5.05 ft BTOC Total Well Depth: 33 ft. BLS Reference: — Well diameter: 3/4 in. Volume in well: 0.66 gal.

Screen: 30-33 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
922	Start	—	—	—	—	—	—	—	—	—	
932	1.0	24.10	7.12	0.516	4.77	0.40	-131.5	0.20	0.532	clear	
937	1.5	24.14	7.04	0.818	0.82	0.40	-122.3	0.22	0.532	clear	
941	1.9	24.15	7.06*	0.820 qualified by JB	0.72	0.40	-118.7	0.24* qualified by JB	0.533	clear	
			* pH 10 ~~Failed~~ CCV					* DO ~~failed~~ CCV			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001B-031.5-2012 01026 Time Collected: 945 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.30 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/20/12 Sampled By: R. Donahue

Station (Well ID): BW0001C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: ~~1003~~ Red 6/26 1016 Time @ End of Purging: 1031 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 8.07 ft BTOC Total Well Depth: 40 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.80 gal

Screen : 37 - 40 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1016 and ~~1003~~	Start	-	-	-	-	-	-	-	-	-	
1026	1.0	24.51	6.73	1.398	1.05	0.70	-162.5	0.16	0.913	clear	
1029	1.3	24.52	6.72	1.439	0.63	0.72	-166.2	0.17	0.939	clear	
1031	1.5	24.50	6.72*	1.454	0.62	0.73	-167.4	0.16*	0.947	clear	
				qualified w/				qualified w/			
			*pH	10 ~~failed~~ CCV JB				*DO ~~failed~~ CCV JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C: pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001C-038.5-2012 0626 Time Collected: 1035 Comments: VOC + nBA, TOC, MEE, Dhc + vcrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.3 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: R. Donahue

Station (Well ID): BW0001D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI556MPS Water Level Meter: durham

Time @ Start of Purging: 1050 Time @ End of Purging: 1111 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 3.01 ft BTOC Total Well Depth: 47 ft BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen : 44-47 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1050	Start	—	—	—	—	—	—	—	—	—	
1107	1.7	24.47	6.81	2.663	1.49	1.38	-222.3	0.26	1.731	clear	
1109	1.9	24.48	6.86	2.665	1.42	1.38	-221.3	0.17	1.733	clear	
1111	2.1	24.52	6.85*	2.665 qualified MP	0.97	1.38	-222.8	0.16* qualified MP	1.732	clear	
			*pH 10 ~~failed~~ CCV JS					* DO ~~failed~~ CCV JS			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001D-045.5-2012 0026 Time Collected: 1115 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.32 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: D. Sievers

Station (Well ID): BW0002A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1227 Time @ End of Purging: ~~1250~~ 1248 Total Purging Time: ~~23 min~~ 21 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.78 ft BTOC Total Well Depth: 26 ft BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen : 23-26 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1234	~~Start~~ 1.5	25.07	7.35	.684	3.0	.33	-191.5	.25	.44	Clear	—
1241	1.0	25.04	7.35	.684	3.1	.33	-191.3	.25	.44	"	—
1248	1.5	25.09	7.35*	.684	2.7	.33	-188.9	.23	.44	"	—
				qualified by							
			* pH 7	~~tested~~ CCV							
				JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002A-024.5-2012 0626 Time Collected: 1248 Comments: VOC $nBA, TOC, MeCl

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=.4 gal

(.0026 · 26) + .3

Monitoring Well Sampling

Site: LC 34 Project No.: F0 0552B Task: 18*1 Date: 6/26/12 Sampled By: D.Sizemore

Station (Well ID): BW0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1151 Time @ End of Purging: 1212 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 5.59 ft BTOC Total Well Depth: 33 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.66 gal

Screen : 30-33 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1158	Start .5	25.23	7.47	.699	6.2	.34	-246.7	.23	.46	Clear	—
1205	1.0	25.17	7.46	.702	2.5	.34	-230.7	.21	.46	"	—
1212	1.5	25.16	7.46*	.704	2.0	.34	-252.7	.20	.46	"	—
				qualified by							
			*pH 7	~~Failed~~ CCV							
				JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C: pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002B-031.5-2012 0626 Time Collected: 1212 Comments: VOC, nBA, TOC, MEE.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .4 gal

(.0026 · 33) + .3 =

Monitoring Well Sampling

Site: LC 34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: A. Sizemore

Station (Well ID): BW 0002 C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1102 Time @ End of Purging: 1123 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 6.01 ft BTOC Total Well Depth: 40 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.80 gal

Screen ~~37~~ 37-40 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1109	~~Start~~ .5	26.14	7.23	2.137	2.3	1.09	-354.1	.30	1.38	Clear	—
1116	1.0	26.04	7.25	2.109	2.4	1.09	-364.0	.20	1.38	"	—
1123	1.5	26.00	7.28*	2.110	2.4	1.09	-364.2	.19	1.35	"	—
				qualified WJ							
			*pH ~~Failed~~ CCV	DB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002C-038.5-20120626 Time Collected: 1123 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

(.0026 · 40) + (.3)

Monitoring Well Sampling

Site: LC 34 Project No.: FO 0552B Task: 18*1 Date: 10/26/12 Sampled By: P. Sizemore

Station (Well ID): BW 0002D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1023 Time @ End of Purging: 1044 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 5.89 ft BTOC Total Well Depth: 47 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen: 44-47 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1030	~~Start~~ .5	25.97	7.24	2.582	10.0	1.33	-323.3	.25	1.68	Clear	—
1037	1.0	26.03	7.28	2.583	9.2	1.31	-352.3	.09	1.65	"	—
1044	1.5	25.99	7.30*	2.582	4.3	1.30	-361.1	.10	1.65	"	—
				qualified MY							
			* pH ~~#7~~ JB	~~Earlier~~ CCV JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002D-045.5-2012 0626 Time Collected: 1044 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .4 gal

.0026 * 47 + (.3)

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/27/12 Sampled By: R. Donahue

Station (Well ID): BW0003A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: durham

Time @ Start of Purging: 935 Time @ End of Purging: 949 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.22 ft BTOC Total Well Depth: 26 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.52 gal

Screen: 23-26 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
935	Start	—	—	—	—	—	—	—	—	—	
945	1.0	24.55	7.52	0.713	0.161	0.35	-173.3	0.63	0.463	clear	
947	1.2	24.53	7.52	0.713	0.516	0.35	-170.8	0.61	0.464	clear	
949	1.4	24.54	7.52*	0.713*	0.36	0.35	-174.7	0.61*	0.464	clear	
		OK	* pH 7 failed CCV JB qualified MY					* DO failed CCV qualified MY JB			
				* Cond. failed CCV JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LL34-BW0003A-024.5-20120627 Time Collected: 955 Comments: VOC's nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.29 JB gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.33 gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/27/12 Sampled By: R. Donahue

Station (Well ID): BW0003B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: durham

Time @ Start of Purging: 1004 Time @ End of Purging: 1019 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 5.37 ft BTOC Total Well Depth: 33 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.66 gal

Screen: 30 - 33 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1004	Start	—	—	—	—	—	—	—	—	—	
1014	1.0	24.48	7.54	0.726	0.52	0.35	-174.5	0.20	0.473	clear	
1018	1.2	24.44	7.54	0.726	0.69	0.35	-167.6	0.20	0.473	clear	
1019	1.4	24.43	7.54*	0.720*	0.49	0.35	-169.3	0.21*	0.473	clear	
		ok	~~*pH failed CCV~~ JB					qualified by * DO ~~failed~~ CCV JB			
				qualified by * Cond. ~~failed~~ CCV JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C: pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003B-031.5-2012 0627 Time Collected: 1022 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~~0.20~~ JB gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.35 gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/27/12 Sampled By: R. Donahue

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: durham

Time @ Start of Purging: 1038 Time @ End of Purging: 1052 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 5.4 ft BTOC Total Well Depth: 40 ft BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.80 gal

Screen: 37 - 40 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1036	Start	—	—	—	—	—	—	—	—	—	
1048	1.0	24.63	7.61	1.060	0.67	0.52	-266.2	0.57	0.691	clear	
1050	1.2	24.58	7.61	1.076	0.52	0.53	-248.4	0.37	0.701	clear	
1052	1.4	24.58	7.61	1.091 *	0.48	0.54	-248.4	0.30*	0.710	clear	
				qualified by JD				qualified by JS			
				* Cond. failed CCV				* DO failed CCV			
				JD				JS			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003C-038.5-20120627 Time Collected: 1056 Comments: VOC & nBD, TOC, MEE, Dhc & verA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.3+ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=0.37 gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/27/12 Sampled By: R. Donahue

Station (Well ID): BW 0003D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: durham

Time @ Start of Purging: 1110 Time @ End of Purging: 1126 Total Purging Time: 16min Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 5.22 ft BTOC Total Well Depth: 47 ft BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.94 gal

Screen: 44-47 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1110	Start Pump in ~	—	—	—	—	—	—	—	—	—	
1120	1025.77	25.19	6.95	2.399	5.86	1.23	-318.8	0.82	1.562	clear	
1122	1.2	25.12	7.14	2.414	3.06	1.24	-332.1	0.69	1.567	clear	
1124	1.4	25.12	7.24	2.413	3.29	1.24	-339.3	0.60	1.570	clear	
1126	1.6	25.05	7.28	2.417 *	2.82	1.24	-340.2	0.56*	1.571	clear	
				qualified MY				qualified MY			
				* Cond - ~~Failed~~ CCV JB				* DO ~~Failed~~ CCV JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003D-045.5-2012 0127 Time Collected: 1135 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~~0.32~~ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.39 gal

Monitoring Well Sampling

Site: LC 34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1401 Time @ End of Purging: 1416 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 5.61 ft BTOC Total Well Depth: 57 ft. BGS Reference: - Well diameter: 6 in. Volume in well: 8.4 gal.

Screen: 47-57 ft. BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1401	Start	26.12	7.40	2.676	3.65	1.38	-276.8	2.23	1.735	clear	
1411	1.0	25.67	7.05	2.653	2.38	1.37	-268.0	0.50	1.725	"	
1413	1.2	25.57	7.07	2.664	2.42	1.37	-269.9	0.43	1.732	"	
1416	1.5	25.48	7.07*	2.695*	2.52	1.39	-269.5	0.38*	1.753	"	
				qualified by				qualified by			
			*pH 4 failed CCV	JB				*DO failed CCV			
				* Cond failed CCV qualified by				JB			
				JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-2012 0626 Time Collected: 1416 Comments: VOC & nBA, TOC, MEE, PhC & VerA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~ 62)+(~~flow thru~~ 0.25 vol.)= 0.41 gal

Monitoring Well Sampling

Site: LC34 Project No.: F0 0552B Task: 18*1 Date: 6/26/12 Sampled By: D Siemon

Station (Well ID): FW0002D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 550 Water Level Meter: Durham

Time @ Start of Purging: 1313 Time @ End of Purging: 1333 Total Purging Time: 18min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 10.37 ft BTOC Total Well Depth: 55 ft. BLS Reference: - Well diameter: 2 in. Volume in well: 8.9 gal

Screen 50-55 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1322	~~Start~~ .5	25.43	7.35	2.365	8.2	1.21	-358.1	.42	1.54	clear	—
1329	1.0	25.38	7.30	2.369	2.6	1.23	-360.1	.32	1.56	"	—
1333	1.3	25.47	7.29*	2.370	2.3	1.23	-363.5	.27	1.56	"	—
				qualified by							
			* pH ~~tested~~ JB	CCV							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-FW0002D1-052.5-2012 0626 Time Collected: 1333 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .4 gal

(.0026 · 55) + .3

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: R. Donahue

Station (Well ID): BW00012 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Charham

Time @ Start of Purging: 1126 Time @ End of Purging: 1240 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 5.52 ft BTOC Total Well Depth: 54 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 1.08 gal

Screen : 51-54 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1126	Start	—	—	—	—	—	—	—	—	—	—
1136	1.0	24.73	7.24	2.385	4.23	1.22	-219.1	0.20	1.550	cloudy	
1138	1.2	24.67	7.20	2.385	2.34	1.22	-216.5	0.20	1.550	clear	
1140	1.4	24.66	7.13*	2.385	1.42	1.22	-214.8	0.21*	1.550	clear	
				qualified JB				qualified JB			
			* pH 10 ~~failed~~ CCV					* DO ~~failed~~ CCV			
				JB				JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW00012-052.5-2012 0126 Time Collected: 1245 Comments: VOC 3nBA, TOC, MEE, Diac & vcrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.33 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: R. Donahue

Station (Well ID): BW0001F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: durham

Time @ Start of Purging: 1155 Time @ End of Purging: 12:09 Total Purging Time: 14 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 6.00 ft BTOC Total Well Depth: 61 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 1.22 gal

Screen 58-61 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1155	Start	—	—	—	—	—	—	—	—	—	
1205	1.0	24.106	7.07	2.436	1.42	1.25	-169.3	0.27	1.584	clear	
1207	1.2	24.104	7.06	2.437	0.75	1.25	-169.4	0.26	1.584	clear	
1209	1.4	24.65	7.05*	2.438	0.62	1.25	-166.5	0.27*	1.584	clear	
				qualified WJ				qualified WJ			
			*pH ID ~~failed~~ CCV					* DO ~~failed~~ CCV			
				JB				JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001F-0595-2012 0626 Time Collected: 1213 Comments: VOC & nBA, TOC, MEE.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: D.Simons

Station (Well ID): BW00028 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 939 Time @ End of Purging: 1000 Total Purging Time: 21 min. Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 6.03 ft BTOC Total Well Depth: 54 ft BGS Reference: ~~FoP~~ Well diameter: 3/4 in. Volume in well: 1.08 gal

Screen 51 - 54 ft BGS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
946	Start .5	25.10	7.62	2.386	2.4	1.23	-269.4	.15	1.56	Clear	—
953	1.0	25.19	7.62	2.394	2.5	1.26	-268.4	.15	1.59	"	—
1000	1.5	25.14	7.61*	2.397	1.3	1.26	-274.0	.15	1.60	"	—
				qualified JS							
			* pH 7 ~~failed~~ CCV JS								

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C: pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002E-052.5-20120626

Sample ID: _____ Time Collected: 1000 Comments: VOC & nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .4 gal

(0.0026 * 54) + (.3)

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/20/12 Sampled By: D. Simon

Station (Well ID): BW0002F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI556 Water Level Meter: Durham

Time @ Start of Purging: 856 Time @ End of Purging: 917 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 6.12 ft BTOC Total Well Depth: 61 ft. BLS Reference: ~~TOC~~ Well diameter: 3/4 in. Volume in well: 1.22 gal

Screen: 58-61 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
903	~~Start~~ .5	24.84	7.54	2.531	0.7	1.30	-271.4	.14	1.65	Clear	
910	1.0	24.77	7.56	2.529	1.1	1.30	-275.1	.12	1.64	"	
917	1.5	24.80	*7.57	2.525	1.4	1.30	-257.5	.12	1.64	"	
				qualified by							
			*pH 7	~~Lotted~~ CCV JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0002F-059.5-2012 0626 Time Collected: 917 Comments: VOC, nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .5 gal

Monitoring Well Sampling

Site: LC34 Project No.: F0 0552B Task: 18*1 Date: 6/27/12 Sampled By: R. Donahue

Station (Well ID): BW00032 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1151 Time @ End of Purging: 1346 Total Purging Time: 55min Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 7.66 ft BTOC Total Well Depth: 54 ft BLS Reference: - Well diameter: 3/4 in. Volume in well: 1.08 gal

Screen : 51-54 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1151	Start	—	—	—	—	—	—	—	—	—	
1238	4.7	25.03	7.46	2.404	1.06	1.34	-291.4	9.46	1.603	clear	
1240	4.9	25.23	7.47	2.606	0.82	1.34	-298.3	1.44	1.694	clear	
1242	5.1	25.04	7.45	2.602	0.99	1.34	-267.4	0.99	1.692	clear	
1244	5.3	24.98	7.42	2.600	0.78	1.34	-287.7	0.80	1.690	clear	
1246	5.5	24.96	7.37	2.597 *	0.95	1.34	-289.0	0.70*	1.687	clear	
				qualified by				qualified by			
				* Cond ~~Sorted~~ CCV JB				* DO ~~Sorted~~ CCV JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW00032-052.5-2012 0627

Sample ID: ___ Time Collected: 1250 Comments: VOC & ABA, TOC, MEE, Dhc & vcrA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~~0.33~~ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.41 gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/27/12 Sampled By: R. Donahue

Station (Well ID): BW0003F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: durham

Time @ Start of Purging: 1302 Time @ End of Purging: 1318 Total Purging Time: 16min Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 5.71 ft BTOC (collected @ 910 on 6/28/12) Total Well Depth: 61 ft BLS Reference: - Well diameter: 3/4 in. Volume in well: 1.22 gal

Screen 58 - 61 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1302	Start	—	—	—	—	—	—	—	—	—	
1314	1.2	25.24	7.51	2.572	1.00	1.33	-297.9	0.28	1.677	clear	
1316	1.4	25.11	7.52	2.588	0.83	1.33	-289.3	0.31	1.693	clear	
1318	1.6	25.08	7.54	2.593*	1.13	1.34	-294.6	0.33*	1.686	clear	
				qualified by				qualified by			
				* Cond. ~~Settled~~ CCV				* DO ~~Settled~~ CCV			
				JB				JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0003F-059.5-2012 0627 Time Collected: 1323 Comments: VOC's by BA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.34 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.43 gal

JB

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: R. Donahue

Station (Well ID): IW0076 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI556MPS Water Level Meter: Durham

Time @ Start of Purging: 1310 Time @ End of Purging: 1328 Total Purging Time: 18 min Depth of Pump or Intake Tubing: 075.0 ft. (BTOC)

Water Level: 6.62 ft BTOC Total Well Depth: 80 ft. BLS Reference: -- Well diameter: 2 in. Volume in well: 13.0 gal

Screen: 70-80 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1310	Start	—	—	—	—	—	—	—	—	—	
1322	1.2	27.41	6.52	2.265	4.30	1.15	-218.7	0.52	1.473	clear	
1324	1.4	28.01	6.49	2.290	6.06	1.17	-211.1	0.60	1.489	clear	
1326	1.6	28.13	6.52	2.317	5.05	1.18	-215.9	0.58	1.513	clear	
1328	1.8	28.15	6.61*	2.337	5.89	1.21	-207.3	0.48*	1.547	clear	
				qualified by				qualified by			
			*pH 10 ~~failed~~ CCV JB					*DO ~~failed~~ CCV JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0076-075.0-2012 0626 Time Collected: 1333 Comments: VOC ½ nBA, TOC, MEE

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= 0.37 gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=_____gal

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Bartlett

Station (Well ID): IW0067D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1155 Time @ End of Purging: 1210 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 5.88 ft BTOC Total Well Depth: 43 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.86 gal

Screen 38 - 43 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1155	Start	25.77	7.45	2.662	124	1.37	-223.9	1.64	1.730	cloudy	
1205	1.0	25.55	7.52	2.655	5.10	1.37	-282.4	0.24	1.726	clear	
1207	1.2	25.51	7.52	2.659	3.52	1.37	-293.6	0.21	1.729	"	
1210	1.5	25.51	7.52*	2.664*	3.01	1.37	-297.7	0.17*	1.732	"	
				qualified WJ							
			*pH 4 ~~sorted~~ CCV								
				JB qualified WJ				qualified WJ			
				* Cond. ~~sorted~~ CCV				* DO ~~sorted~~ CCV			
				JB				JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0067D-040.5-2012 0626 Time Collected: 1210 Comments: VOC 4nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~ 40)+(flow ~~thru~~ 0.25 vol.)= 0.37 gal

Monitoring Well Sampling

Site: LC34 Project No.: F0 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Bartlett

Station (Well ID): IW0067D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1059 Time @ End of Purging: 1139 Total Purging Time: 39 min Depth of Pump or Intake Tubing: 068.0 ft. (BTOC)

Water Level: 5.81 ft BTOC Total Well Depth: 73 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 1.5 gal

Screen : 63-73 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1059	Start	25.22	7.43	2.637	>1000	1.36	-150.1	2.10	1.720	white	
1109	1.0	25.21	7.43	2.660	757	1.37	-126.6	0.27	1.729	"	
1120	2.0	25.09	7.41	2.664	258	1.37	-136.9	0.14	1.731	cloudy	
1130	3.0	25.05	7.40	2.665	94.9	1.38	-142.8	0.12	1.732	"	
1135	3.5	25.20	7.41	2.670	127	1.38	-148.8	0.13	1.736	"	
1137	3.7	25.21	7.41	2.669	128	1.38	-147.4	0.13	1.735	cloudy/white particles	
1139	3.9	25.23	7.41*	2.670*	125	1.38	-146.1	0.14*	1.736	"	
			qualified w/						qualified w/		
			*pH 4 failed CCV JB		turbidity not dropping ± 5 NTU.			* DO failed CCV	JB		
				qualified w/							
				* Cond. failed CCV JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0067D1-0680-2012 0626 Time Collected: 1139 Comments: VOC & nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.145 gal

78 0.25

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Barteh

Station (Well ID): IW0070D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) Ysi 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0923 Time @ End of Purging: 0938 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 4.83 ft BTOC Total Well Depth: 43 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.86 gal

Screen : 38 - 43 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0923	Start	25.43	7.41	2.429	111	1.25	-211.9	1.83	1.600	cloudy	
0933	1.0	25.50	7.50	2.686	12.7	1.39	-270.6	0.35	1.746	clear	
0935	1.2	25.52	7.50	2.695	7.51	1.39	-275.8	0.36	1.753	"	
0938	1.5	25.40	7.49*	2.714 *	3.83	1.40	-280.8	0.42*	1.765	"	
				qualified WJ							
			* pH 4 ~~Failed~~ CCV JB								
				qualified WJ				qualified WJ			
				* Cond. ~~Failed~~ CCV JB				* DO ~~Failed~~ CCV JB			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0070D-040.5-2012 0626 Time Collected: 0938 Comments: VOC & nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~ 48)+(~~flow thru~~ 0.25 vol.)= 0.38 gal

Monitoring Well Sampling

Site: LC 34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Bartlett

Station (Well ID): IW 0070D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 0851 Time @ End of Purging: 0908 Total Purging Time: 17 min Depth of Pump or Intake Tubing: 070.0 ft. (BTOC)

Water Level: 5.75 ft BTOC Total Well Depth: 75 ft. BLS Reference: – Well diameter: 3/4 in. Volume in well: 1.5 gal

Screen : 65 - 75 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
0851	Start	25.52	7.31	1.571	43.6	0.82	-138.7	2.93	1.157	clear	
0901	1.0	25.16	7.39	1.653	5.40	1.37	-106.0	0.41	1.724	"	
0906	1.5	25.06	7.41	2.686	3.66	1.39	-92.3	0.42	1.746	"	
0908	1.7	25.04	7.42*	2.693*	3.11	1.39	-90.1	0.42*	1.751	"	
				qualified by							
			*pH 4 ~~Failed~~ CCV JB					qualified by			
				qualified by				* DO ~~Failed~~ CCV JB			
				* Cond. ~~Failed~~ CCV JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0070D1-070.0-2012 0626 Time Collected: 0908 Comments: VOC & nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~)+(~~flow thru vol.~~)= 0.96 gal

80 0.25

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Berthelt

Station (Well ID): IW0071D Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1001 Time @ End of Purging: 1016 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 040.5 ft. (BTOC)

Water Level: 2.98 ft BTOC Total Well Depth: 43 ft BLS Reference: - Well diameter: 3/4 in. Volume in well: 0.86 gal

Screen: 38-43 ft BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1001	Start	24.28	7.41	2.283	16.0	1.18	-201.7	1.62	1.526	clear	
1011	1.0	24.02	7.41	2.493	1.07	1.28	-241.2	0.15	1.621	"	
1013	1.2	24.01	7.41	2.494	1.23	1.28	-246.2	0.14	1.621	"	
1016	1.5	24.02	7.42*	2.493* qualified w/ JB	1.57	1.28	-241.9	0.13* qualified w/ JB	1.621	"	
			* pH 4 ~~failed~~ CCV JB								
				* Cond. ~~failed~~ CCV qualified w/ JD				* DO ~~failed~~ CCV			

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0071D-040.5-2012 0626 Time Collected: 1016 Comments: VOC & nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____ gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing~~ length)+(flow ~~thru~~ vol.)= 0.38 gal

48 0.25

Monitoring Well Sampling

Site: LC 34 Project No.: F0 0552B Task: 18*1 Date: 6/26/12 Sampled By: J. Barthelt

Station (Well ID): FW 0071D1 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1026 Time @ End of Purging: ~~73~~ JB 1041 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 070.0 ft. (BTOC)

Water Level: 3.52 ft BTOC Total Well Depth: 73 ft. BLS Reference: - Well diameter: 3/4 in. Volume in well: 1.5 gal

Screen : 63-73 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1026	Start	24.35	7.49	1.782	74.2	0.95	-187.2	3.45	1.305	cloudy	
1036	1.0	24.05	7.42	2.628	2.24	1.36	-167.9	0.18	1.709	Clear	
1038	1.2	24.05	7.42	2.630	2.17	1.36	-161.2	0.16	1.710	"	
1041	1.5	24.04	7.42*	2.633 *	1.58	1.36	-150.6	0.15 *	1.712	"	
				qualified w/							
			* pH 4 ~~failed~~ CCV JB					qualified w/			
				qualified w/				* DO ~~failed~~ CCV JB			
				* Cond. ~~failed~~ CCV JB							

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-FW0071D1-070.0-2012 0626 Time Collected: 1041 Comments: VOC & nBA.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~ 78)+(~~flow thru~~ 0.25 vol.)= 0.45 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: ~~PO~~ 0552B Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556 MPS / 10K101388 Turbidimeter - Model/Serial # LaMotte 2020e / ~~MM~~ JS MC13571

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		7/19/12	0802	22.71	8.627	8.20/8.03	94.8/100.3	P F
CAL ICV CCV		7/19/12	1330	22.97	8.578	8.72	101.2	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		7/19/12	0819	1.413 ~~4.49~~	9569 ~~2316~~	03-2013	1.417/1.413	P F
CAL ICV CCV		7/19/12	1312	〃	〃	〃	1.414	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		7/19/12	0805	4.0	2110380	04-2013	4.01/4.00	P F
CAL ICV CCV		↓	↓	7.0	2002046	01-2014	7.04/7.00	P F
CAL ICV CCV		↓	↓	10.0	2111265	04-2013	9.89/9.98	P F
CAL ICV CCV		7/19/12	1302				4.02	P F
CAL ICV CCV		↓	↓	〃	〃	〃	7.01	P F
CAL ICV CCV		↓	↓				9.91	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		7/19/12	0822	240 ± 25	3717	11-2016	243.4/240.0	P F
CAL ICV CCV		7/19/12	1315	〃	〃	〃	237.6	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 1 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	7/19/12	0.95/0.96	P F
CAL ICV CCV	〃	0.95	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

~~11 - 40 NTU~~ JS Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	7/19/12	10.57/10.40	P F
CAL ICV CCV	〃	9.90	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std ____NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: EC34 Project No.: FO0552B Task: 1210 Date: 7/19/12 Sampled By: J. Bartlett

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1008 Time @ End of Purging: 1024 Total Purging Time: 16 min. Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 6.21 Ft. BTOC Total Well Depth: 42 ft. BLS Reference: - Well diameter: 6 in. Volume in well: 62 gal.

Screen: 35-42 Ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1008	Start	25.77	7.46	1.964	0.68	1.00	-245.1	1.60	1.276	clear	
1018	1.0	25.58	7.37	1.941	0.10	0.98	-337.7	0.41	1.261	"	
1020	1.2	25.54	7.38	1.938	0.10	0.98	-336.9	0.40	1.259	"	
1024	1.6	25.57	7.39	1.933	0.08	0.98	-323.8	0.38	1.256	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: EC34-RW0007-038.5-20120719 Time Collected: 1024 Comments: VOC 4mL.

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~)+(~~flow thru~~ vol.)= 0.37 gal

47 0.25

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 1240 Date: 7/19/12 Sampled By: J. BARTLETT

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Grundfos pump Purge Rate: 10.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Solinst

Time @ Start of Purging: 1051 Time @ End of Purging: 1106 Total Purging Time: 15 min. Depth of Pump or Intake Tubing: 052.0 ft. (BTOC)

Water Level: 7.96 ft. BTOC Total Well Depth: 57 ft. BLS Reference: - Well diameter: 6 in. Volume in well: 84 gal

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1051	Start	25.74	7.72	2.522	0.22	1.30	-287.1	0.68	1.640	clear	
1101	1.0	25.79	7.54	2.518	0.12	1.29	-308.7	0.32	1.636	"	
1103	1.2	25.71	7.54	2.517	0.11	1.29	-304.2	0.31	1.636	"	
1106	1.5	25.88	7.51	2.509	0.09	1.29	-306.1	0.32	1.630	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20120719 Time Collected: 1106 Comments: VOC & MBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~ 62)+(~~flow thru~~ 0.25 vol.)= 0.41 gal

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: F0057213 Field Personnel: J. Bartlett

Water Quality Meter - Model/Serial #: YSI 556MPS / 11J101200 Turbidimeter - Model/Serial # HACH 2100Q / 11020C007557

Dissolved Oxygen — DEP SOP FT 1500 — Acceptance Criteria: +/-0.3mg/L

	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
(CAL) (CV) CCV	8/16/12	0914	22.79	8.611	8.33 / 8.61	108.3 / 100	(P) F
CAL ICV (CCV)	"	1457	26.00	8.114	8.39	103.3	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance — DEP SOP FT 1200 — Acceptance Criteria: +/- 5%

	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
(CAL) (CV) CCV	8/16/12	0941	1.413	1071147	07-2012	1.425 / 1.413	(P) F
CAL ICV CCV	"	1518	"	"	"	1.407	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F
CAL ICV CCV							P F

pH — DEP SOP FT 1100 — Acceptance Criteria: +/-0.2 SU

	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
(CAL) (ICV) CCV	8/16/12	0919	4.0	0110969	11-2012	3.91 / 4.00	(P) F
CAL ICV CCV	↓	↓	7.0	1081860	09-2013	6.86 / 7.00	(P) F
CAL ICV CCV	↓	↓	10.0	0122799	12-2012	10.10 / 10.02	(P) F
CAL ICV (CCV)	8/16/12	1503				4.09	(P) F
CAL ICV CCV	↓	↓	"	"	"	6.85	(P) F
CAL ICV CCV	↓	↓				9.81	(P) F

ORP — SOP N/A — Geosyntec Acceptance Criteria: +/- 5%

	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
(CAL) (ICV) CCV	8/16/12	0945	240 @ 25	2981	01-2016	240.4 / 240.0	(P) F
CAL ICV (CCV)	"	1521	"	"	"	237.5	(P) F
CAL ICV CCV							P F
CAL ICV CCV							P F

Specific Conductance Probe Cleaned? Yes (No) Disolved Oxygen membrane Changed? Yes (No)

0.1 - 10 NTU — Std 10 NTU — Acceptance Criteria: +/- 10%

	Date	Reading (NTU)	Pass or Fail
CAL ICV CCV	8/16/12	9.39	(P) F
CAL ICV (CCV)	"	9.47	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU — Std 20 NTU — Acceptance Criteria: +/- 8%

	Date	Reading (NTU)	Pass or Fail
CAL (ICV) CCV	8/16/12	19.8	(P) F
CAL ICV (CCV)	"	21.2	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU — Std 100 NTU — Acceptance Criteria: +/- 6.5%

	Date	Reading (NTU)	Pass or Fail
CAL (CV) CCV	8/16/12	101	(P) F
CAL ICV (CCV)	"	103	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU — Std 800 NTU — Acceptance Criteria: +/- 5%

	Date	Reading (NTU)	Pass or Fail
CAL (ICV) CCV	8/16/12	790	(P) F
CAL ICV (CCV)	"	772	(P) F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Comments:

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: FO 0552B Task: 1240 Date: 8/16/12 Sampled By: J. Barkett

Station (Well ID): AW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) __X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: ~0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1250 Time @ End of Purging: 1305 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 038.5 ft. (BTOC)

Water Level: 10.07 ft. BTOC Total Well Depth: 42 ft. BLS Reference: — Well diameter: 1.469 in. Volume in well: 61.7 gal

Screen: 35-42 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1250	Start	26.29	7.37	2.596	0.97	1.34	-259.9	0.36	1.709	clear	
1300	1.0	26.19	7.37	2.762	1.82	1.43	-301.3	0.10	1.796	"	
1302	1.2	26.18	7.39	2.793	1.52	1.45	-311.0	0.10	1.825	"	
1305	1.5	26.19	7.42	2.813	1.17	1.45	-323.6	0.09	1.827	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-AW0007-038.5-20120816 Time Collected: 1305 Comments: VOC & MBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.37 gal

47 0.25

Monitoring Well Sampling

Site: LC34 Project No.: F00552B Task: 1240 Date: 8/16/12 Sampled By: J. Bartlett

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 40.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Durham

Time @ Start of Purging: 1327 Time @ End of Purging: 1332 Total Purging Time: 15 min Depth of Pump or Intake Tubing: 652.0 ft. (BTOC)

Water Level: 9.04 ft. BTOC Total Well Depth: 57 ft. BLS Reference: — Well diameter: 6 in. Volume in well: 83.7 gal

Screen: 47-57 ft. BLS

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1317	Start	26.53	7.93	3.639	3.99	1.91	-291.6	0.40	2.363	clear	
1327	1.0	25.79	7.70	3.633	1.88	1.91	-339.2	0.35	2.362	"	
1329	1.2	25.72	7.67	3.636	1.59	1.91	-340.1	0.34	2.363	"	
1332	1.5	25.70	7.64	3.640	1.62	1.91	-341.2	0.36	2.365	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-RW0008-052.0-20120816 Time Collected: 1332 Comments: VOC & nBA

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026x~~tubing length~~ 62)+(~~flow thru~~ 0.025 vol.)= 0.41 gal

Geosyntec consultants

DAILY FIELD REPORT

Project: F0055-2B LC34
Project No.: F0055-2B
Contractors:

Date: 9-11-12
Task No.: ~~38~~ 18M

YSA 556 MPS 05D2373AIC

Work Performed

Well Installation:		Sampling Soil:	
Soil Borings:		Sampling SW/Sediment:	
DPT:		Sampling Monitor Wells:	
Well Inventory:	BW 0002 A, B, C, D, E, F	Sampling Hazardous Waste:	
Other:	BW 003 A, B	Sampling Drums:	

Observations/Issues of Concern

06:30 Arrive @ office calibrate equipment
08:00 Arrive on site
Sampled wells BW 0002 A, B, C, D, E, F BW 0003 A, B

Returned to office with samples + equipment 14:30
End calibrated equipment.

Stored equipment Completed Paper work. 15:00

Plans/Future Activities

9/11/12
Signature/Date

Geosyntec consultants

DAILY FIELD REPORT

Project: LC31
Project No.: FO0512B
Contractors:

Date: 9/13/12
Task No.: 1B-1

Work Performed

Well Installation:
Soil Borings:
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

630 AT office, Calibrating YSI, Hach 2100Q.
710 Depart For Site.
745 Arrive Site & set up & Begin GW Sampling.
1155 GW Sampling Complete, Dispose of IDW in blue Poly Drum Located Inside GW Treatment Compound Drum is ~40% full.
1230 Depart Site for office.

Plans/Future Activities

9/13/12
Signature/Date

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC 43 Project #: FA0552B Field Personnel: Robinson C

Water Quality Meter - Model/Serial #: YSI 556 MPS 05D2373AK Turbidimeter - Model/Serial # Hach 1Q1 10C006599

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		9-11-12	06:55	21.7	8.794	7.71/8.79	87.5/100.2	P F
CAL ICV CCV		9-11-12	1430	24.3		~~8.435~~	8	P F
CAL ICV CCV						~~7.870~~	89.4	P F
CAL ICV CCV						8.09		P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		9-11-12	06:55	1.413	9373	12/12	.997/1.413	P F
CAL ICV CCV		9-11-12	1430	11	11	~~11/2012~~	1.425	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		9-11-12	06:55	7	1081860	8/13	7.61/7.00	P F
CAL ICV CCV		~~9-11-12~~		4	0110969	10/12	4.21/3.97	P F
CAL ICV CCV				10	0122799	12/12	8.65/9.66	P F
CAL ICV CCV		9-11-12	1430	7			6.25	P F
CAL ICV CCV				4			3.44	P F
CAL ICV CCV				10			9.90	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		9-11-12	06:55	240	3159	5-16	237.9/240.1	P F
CAL ICV CCV		9-11-12	14:30	11	11	11	237.3	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	9-11-12	20.1/20.	P F
CAL ICV CCV	11	/20	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	9-11-12	10.3	P F
CAL ICV CCV	9-11-12	8.89	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV	9-11-12	99.7/100	P F
CAL ICV CCV	11	100	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV	9-11-12	770/800	P F
CAL ICV CCV	11	/800	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

Comments: Failed DO, Ph 7 & Ph 4 CCV

CAL - Initial Calibration
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification
Allow adequate time for the disolved oxygen sensor to equilibrate during air calibration
Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)
Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)
If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec CONSULTANTS

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC 34 Project #: Fo055a B Field Personnel: Rd. nour C

Water Quality Meter - Model/Serial #: YSI 556 MPS 05D2373 AK Turbidimeter - Model/Serial # HACH 1122664

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		9.12.12	14:45	22.4	8.677	8.22/8.67	94.7/100.0	P F
CAL ICV CCV		9.13.12	14:06	24.3	8.371	8.00		P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		9.12.12	14:45	1.413	9373	12.12	1.413/1.413	P F
CAL ICV CCV		9.13.12	14:06	1.445	"	"	1.445	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		9.12.12	14:45	7	1081860	8.13	7.05/7.00	P F
CAL ICV CCV		↓		4	0110964	11.12	3.99/4.00	P F
CAL ICV CCV		↓		10	0132755	12.12	9.93/9.99	P F
CAL ICV CCV		9.13.12	1406	7	"	"	6.99	P F
CAL ICV CCV		↓	↓	4	"	"	3.68	P F
CAL ICV CCV		↓	↓	10	"	"	9.63	P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		9.12.12	14:45	240	3159	3.16	240.4/240	P F
CAL ICV CCV		9.13.12	1406	"	"	"	235.4	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

0.1 - 10 NTU Std ___NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	9.13.12	9.69	P F
CAL ICV CCV	9.13.12	10.4	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	9.13.12	19.8/20	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV	9.13.12	103/100	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV	9.13.12	822/800	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

1. See Table FS 2200-2 on the back of this form

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Comments: fail pH 4.10 CCV. Pass DO CCV

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec CONSULTANTS

Geosyntec Consultants
Water Quality Instrument Calibration Form

Project/Site: LC34 Project #: F005523 Field Personnel: P. Sizemore

Water Quality Meter - Model/Serial #: YSI 556 04555311 Turbidimeter - Model/Serial # Hach 2100Q

Dissolved Oxygen	DEP SOP FT 1500	Date	Time	Temp (°C)	Saturation (mg/L)[1]	Reading (mg/L)	Reading (%)	Pass or Fail
						Acceptance Criteria: +/-0.3mg/L		
CAL ICV CCV		9/13/12	630	23.05	8.562	9.01=8.57	100.1	P F
CAL ICV CCV		9/13/12	1519	23.41	8.51	8.50	100.0	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

0.1 - 10 NTU Std 10 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 10%	
CAL ICV CCV	9/13	10.3 - 10.0	P F
CAL ICV CCV	9/13	10.1	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance	DEP SOP FT 1200	Date	Time	Standard (mS/cm)	Standard Lot #	Standard Exp. Date	Reading (mS/cm)	Pass or Fail
						Acceptance Criteria: +/- 5%		
CAL ICV CCV		9/13/12	632	1.413	5710	5/13	1.391-1.414	P F
CAL ICV CCV		9/13/12	1520	"	"	"	1.420	P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F
CAL ICV CCV								P F

11 - 40 NTU Std 20 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 8%	
CAL ICV CCV	9/13	20.3-20.0	P F
CAL ICV CCV	9/13	20.3	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

pH	DEP SOP FT 1100	Date	Time	Standard (SU)	Standard Lot #	Standard Exp. Date	Reading (SU)	Pass or Fail
						Acceptance Criteria: +/-0.2 SU		
CAL ICV CCV		9/13/12	625	4	2203237	2/14	4.06-4.02	P F
CAL ICV CCV			633	7	2111265	4/13	7.12-7.01	P F
CAL ICV CCV			~~632~~ 633	10	2204M76	4/14	10.03-10.00	P F
CAL ICV CCV		9/13/12	1521	4			4.12	P F
CAL ICV CCV			1521	7			7.22	P F
CAL ICV CCV			1522	10			10.19	P F

41 - 100 NTU Std 100 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 6.5%	
CAL ICV CCV	9/13	92.3-100.0	P F
CAL ICV CCV	9/13	95.8	P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F
CAL ICV CCV			P F

ORP	SOP N/A	Date	Time	Std. mV @ Temp °C	Standard Lot #	Standard Exp. Date	Reading (mV)	Pass or Fail
						Geosyntec Acceptance Criteria: +/- 5%		
CAL ICV CCV		9/13/12	638	240@25	2981	1/16	240.0	P F
CAL ICV CCV		9/13/12	1524	5 A	M E	1/16	238.9	P F
CAL ICV CCV								P F
CAL ICV CCV								P F

>100 NTU Std 800 NTU	Date	Reading (NTU)	Pass or Fail
		Acceptance Criteria: +/- 5%	
CAL ICV CCV	9/13	797-800	P F
CAL ICV CCV	9/13	789	P F
CAL ICV CCV			P F
CAL ICV CCV			P F

Specific Conductance Probe Cleaned? Yes No Disolved Oxygen membrane Changed? Yes No

1. See Table FS 2200-2 on the back of this form

Comments: Failed pH7 CCV

CAL - Initial Calibration

ICV - Initial Calibration Verification

CCV - Continuing Calibration Verification

Allow adequate time for the dissolved oxygen sensor to equilibrate during air calibration

Calibrate specific conductance using at least two standards that bracket the range of expected sample readings (unless readings < 0.1 mS/cm then one standard of 0.1 mS/cm is acceptable)

Calibrate pH using at least two standards (typ. pH 4 and 7) that bracket the range of expected sample readings; always start with pH 7; add a third calibration point if needed (i.e. pH > 7)

If parameter fails to calibrate within SOP acceptance criteria then append sample results with a "J" qualifier

Geosyntec consultants

Monitoring Well Sampling

Site: LC34 Project No.: F00552B Task: 1B #1 Date: 9/13/12 Sampled By: D. Sromocl

Station (Well ID): RW0007 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 930 Time @ End of Purging: 951 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 37.5 ft. (BTOC)

Water Level: 5.90 Total Well Depth: 42 Reference: BTOC Well diameter: 6 in. Volume in well: NA

35-42

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
937	.5 ~~Start~~	26.42	7.94	.915	7.5	.45	-243.2	.58	.60	Clear	—
944	1.0	26.46	7.84	.919	3.4	.45	-240.0	.29	.60	"	—
951	1.5	26.50	7.85	.919	2.9	.45	-241.0	.25	.60	"	—

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34 - RW0007 - 037.5 - 20120913

Sample ID: _____ Time Collected: 951 Comments: VOCs, MEE, TOC PHC ~~Failed~~ pH 7 CCV J' qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .4 gal

40 . 3

Monitoring Well Sampling

Site: LC34 Project No.: F005528 Task: 18#1 Date: 9/13/12 Sampled By: D. Sremac

Station (Well ID): IW0002I Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ~~__~~ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Grapump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 803 Time @ End of Purging: 824 Total Purging Time: 21 min Depth of Pump or Intake Tubing: ~~50~~ 52.5 ~~27.5~~ ft. (BTOC)

Water Level: 4.78 Total Well Depth: ~~55~~ 30 Reference: BTOC Well diameter: 2 in. Volume in well: N/A

screen ~~50-55~~ 25-30

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
~~8[illegible]~~ 810	~~Start~~ .5	26.39	7.60	.501	11.8	.24	+16.2	.94	.34	Clear	—
817	1.0	26.30	7.62	.504	11.3	.25	+17.3	.91	.35	"	—
824	1.5	26.36	7.63	.509	10.9	.25	+17.7	.77	.33	"	—

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW0002I-027.5-20120913

Sample ID: _____ Time Collected: 824 Comments: VOC, MEE, TOC

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

30 .3

~~Failed~~ pH 7 CCV "J" qualified

Monitoring Well Sampling

Site: LC34 Project No.: F00552B Task: 18*1 Date: 9/13/12 Sampled By: D. Szemore

Station (Well ID): IW0002D Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic ✓ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 830 Time @ End of Purging: 851 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 37.5 ft. (BTOC)

Water Level: 4.91 Total Well Depth: 40 35-40 Reference: BTOC Well diameter: 2 in. Volume in well: NA

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
837	~~Start~~.5	26.01	7.79	.711	6.8	.35	-125.7	.56	.46	Clear	—
844	1.0	26.00	7.76	~~.715~~ .715	5.8	.37	-152.8	.44	.50	"	—
851	1.5	26.06	7.76	.716	6.6	.37	-156.6	.56	.50	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34 - IW0002D - 037.5 - 20120913 Time Collected: 851 Comments: VOC, TOC, metals ~~Field~~ pH 7 CCV 5' qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 1.7 gal

40 .3

Monitoring Well Sampling

Site: LC 34 Project No.: F00552 B Task: ~~25~~ 184 Date: 9-13-12 Sampled By: R. Robinson C

Station (Well ID): BW0001A Purge Method: ~~Pump~~ Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 10:30 Time @ End of Purging: 10:53 Total Purging Time: 21 Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 4.9 Total Well Depth: 26 Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
10:30	Start	26.10	7.41	.905	9.14	.44	-173.8	2.16	.586	Clear	—
10:37	.5	26.21	7.39	.896	3.23	.44	-152.9	1.83	.582	"	"
10:45	1.0	26.20	7.41	.893	1.44	.44	-141.9	1.45	.580	"	"
10:53	1.5	26.19	7.41	.893	.50	.441	-141.0	1.36	.581	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001A-024.5-20120913 Time Collected: 10:51 Comments: VOC ~~Fe~~, TOC JB ~~Failed~~ DO, pH 4, pH 7 CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

J qualified

026 X 024.5 + .3 =

Monitoring Well Sampling

Site: LC34 Project No.: F00552B Task: ~~38~~ JB 187 Date: 9.13.12 Sampled By: Robinson C

Station (Well ID): BW00013 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GEO Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 11:00 Time @ End of Purging: 11:21 Total Purging Time: 21 Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 6 Total Well Depth: 33 Reference: BTOC Well diameter: 3/4 in. Volume in well: ___

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
11:00	Start	26.56	7.56	.930	3.39	.46	-155.1	.99	.615	CLEAR	—
11:07	.5	26.43	7.57	1.014	1.24	.50	-161.1	1.01	.665	"	"
11:14	1.0	26.36	7.59	1.046	.74	.52	-162.5	1.12	.684	"	"
11:21	1.5	26.34	7.59	1.058	.60	.52	-164.4	1.21	.690	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34 · BW00013 · 031.5 · 20120913

Sample ID: ___ Time Collected: 11:23 Comments: TOC. MEE. TOC ~~Failed~~ pH 4 & ph10 CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

.0026 X 33 + .32

J qualified DO,

Monitoring Well Sampling

Site: LC34 Project No.: F0055QB Task: 1871 Date: 9/13/12 Sampled By: O. Simmons

Station (Well ID): BW0001C Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1106 Time @ End of Purging: 1127 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.25 Total Well Depth: 40 Reference: BTOC Well diameter: 3/4 in. Volume in well: N/A

Screen 37-40

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1113	~~Start~~ .5	26.46	7.61	.984	5.3	.48	-16.5	.41	.64	Clear	—
1120	1.0	26.44	7.61	.985	5.3	.48	-16.0	.42	.65	"	—
1127	1.5	26.42	7.61	.985	5.6	.48	-16.0	.41	.65	"	—

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001C-038.5-20120913 Time Collected: 1127 Comments: VOC, TOC, MEE, DHC, ~~Fe, Ted~~ SB pH 7 CCV

J qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 79.3 gal

Monitoring Well Sampling

Site: LC 34 Project No.: 6005528 Task: RI FS Date: 9-13-12 Sampled By: RoSinson C

Station (Well ID): BW0061D Purge Method: ~~Pump~~ Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ~~Peristaltic~~ ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 11:50 Time @ End of Purging: 12:11 Total Purging Time: 21 Depth of Pump or Intake Tubing: 45.5 ft. (BTOC)

Water Level: 9 Total Well Depth: 47 Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
11:50	Start	26.75	6.93	3.654	37.1	1.92	-269.4	1.25	2.400	Cloudy	11
11:57	.5	26.89	6.92	3.770	33.4	1.99	-279.6	1.61	2.545	"	"
12:04	1.0	25.91	6.95	3.777	23.4	1.99	-277.5	1.77	2.456	"	"
12:11	1.5	25.72	6.99	3.786	17.3	1.99	-283.3	1.62	2.462	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC 34 BW0061D · 045.5 · 20120913

Sample ID: _____ Time Collected: 12:13 Comments: VOC · MEE · TOC SB ~~Failed~~ Ph 4, Ph 10 CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

J qualified DO,

.0026 x 045.0 + .3 =

Monitoring Well Sampling

Site: LC 34 Project No.: FO 0552 B Task: ~~38~~ 38 184 Date: 9.11.12 Sampled By: Robinson C

Station (Well ID): BW0002A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 0845 Time @ End of Purging: 0906 Total Purging Time: 21 Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.17 BTOC Total Well Depth: 26 Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
08:45	Start	26.37	7.23	.976	2.30	.48	53.4	1.24	.634	Clear	None
08:52	0.5	26.35	7.17	.968	.95	.48	43.7	.82	.630	Clear	"
08:59	1.0	26.22	7.14	.964	1.01	.47	36.0	.71	.626	"	"
09:06	1.5	26.18	7.13	.962	.56	.47	32.2	.70	.625	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002A-024.5-20120911

Sample ID: _____ Time Collected: 09:07 Comments: VOC, Met. TOC ~~Folate~~ 38 pH 4, pH 7 & DO CCV

J qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .37 gal

.0026 x 26 + .3 = .37

Monitoring Well Sampling

Site: LC 34 Project No.: F0055213 Task: ~~38~~ 18 Date: 9-11-12 Sampled By: Rossiter C

Station (Well ID): BW 0002B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 09:22 Time @ End of Purging: 09:43 Total Purging Time: 28 Depth of Pump or Intake Tubing: 31.5 ft. (BTOC)

Water Level: 5.15 Total Well Depth: 33 Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
09:22	Start	26.32	7.21	.956	12.6	.47	2.5	2.05	.621	Cloudy	—
09:29	.5	26.18	7.17	.957	7.64	.47	-5.1	.46	.622	"	"
09:36	1.0	25.98	7.21	.950	2.41	.47	-12.9	.40	.616	"	"
09:43	1.5	26.0	7.23	.945	1.00	.46	-19.6	.30	.614	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002B-031.5-20120911

Sample ID: _____ Time Collected: 09:45 Comments: VOC-MEE. TOC ~~Turbidity~~ pH4, pH7 & DO CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .38 gal

.0026 X 33 + .3 = .38

Monitoring Well Sampling

Site: LC 34 Project No.: F00552B Task: 38 (18) Date: 9-11-12 Sampled By: RoSinson C

Station (Well ID): BW0002C Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) 1 Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MP Water Level Meter: Heron

Time @ Start of Purging: 09:50 Time @ End of Purging: 10:11 Total Purging Time: 21 Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.4 Total Well Depth: 40 Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
09:50	Start	25.91	7.05	2.501	4.42	1.28	-74.3	.28	1.625	Clear	—
09:57	.5	25.85	7.25	2.465	2.06	1.27	-157.8	.23	1.602	"	"
10:04	1.0	25.80	7.37	2.468	1.62	1.27	-224.7	.29	1.607	"	"
10:11	1.5	25.89	7.44	2.491	.941	1.28	-250.8	.30	1.621	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002C-038.5-20120911

Sample ID: _____ Time Collected: 10:13 Comments: VOC . MEE . TOC JB ~~failed~~ PH 4, PH 7 & DOCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .40 gal

J qualified

.0026 X 40 + .3 = .40

Monitoring Well Sampling

Site: LC 34 Project No.: F0055 2B Task: ~~38~~ JB 18* Date: 9.11.12 Sampled By: Robinson C

Station (Well ID): BW0002D Purge Method: ~~Pump~~ Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MP Water Level Meter: Heron

Time @ Start of Purging: 11:30 Time @ End of Purging: 11:51 Total Purging Time: 21 Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 6.4 Total Well Depth: ~~45~~ Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
11:30	Start	26.96	7.83	3.264	20.9	1.70	-232.8	3.29	2.121	cloudy	—
11:37	.5	26.87	7.71	3.295	16.9	1.72	-305.0	2.21	2.141	"	"
11:44	1.0	26.85	7.69	3.304	8.82	1.72	-320.8	1.87	2.150	"	"
11:51	1.5	26.90	7.69	3.311	5.52	1.73	-324.6	1.77	2.155	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002D-045.5-20120911

Sample ID: _____ Time Collected: 11:53 Comments: VOC. MCL. TOC JB ~~Failed~~ pH4, pH7 & DO CCV Jqualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .42 gal

.0026 x 47 + .3 = .42

Monitoring Well Sampling

Site: LC 34 Project No.: F0055 2B Task: ~~JE~~ JRB 18*1 Date: 9-11-12 Sampled By: R. Sinson C

Station (Well ID): BW0003A Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 12:53 Time @ End of Purging: 13:14 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 024.5 ft. (BTOC)

Water Level: 5.1 Total Well Depth: 26 Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
12:53	Start	26.34	7.73	.908	4.59	.45	-54.2	3.65	.599	CLEAR	—
13:00	.5	26.52	7.52	.913	1.49	.45	-88.3	2.62	.591	CLEAR	—
13:07	1.0	26.59	7.42	.901	.63	.44	-86.8	2.39	.585	"	"
13:14	1.5	26.60	7.41	.898	.40	.44	-87.1	2.32	.583	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0003A-024.5-20120911

Sample ID: _____ Time Collected: 13:18 Comments: VOC. MEE. TOC #3 ~~Failed~~ PH4, PH7 & DO CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .37 gal

J qualified

.0026 x 26 + .3 = .37

Monitoring Well Sampling

Site: LC34 Project No.: F0055213 Task: ~~38~~ JB 18*1 Date: 9-11-12 Sampled By: Robinson

Station (Well ID): BW0003B Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) 457556 MP Water Level Meter: Heron

Time @ Start of Purging: 13:21 Time @ End of Purging: 13:42 Total Purging Time: 21 Depth of Pump or Intake Tubing: 031.5 ft. (BTOC)

Water Level: 6.45 Total Well Depth: 33' Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
13:21	Start	26.13	7.34	.897	3.96	.44	-101.1	1.71	.582	Clear	—
13:28	.5	26.00	7.32	.894	2.11	.421	-102.8	1.60	.581	"	"
13:35	1.0	25.91	7.30	.896	.77	.441	-104.0	1.53	.578	"	"
13:42	1.5	26.01	7.28	.888	.62	.43	-104.1	1.49	.577	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0003B-031.5-20120911

Sample ID: _____ Time Collected: 13:45 Comments: VOC, MEE, TOC ~~Field~~ pH 4/7 & DO CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .38 gal

J qualified

~~31.5~~ .0026 × 33 + .3 = .38

Monitoring Well Sampling

Site: KC34 Project No.: F0055213 Task: ~~28~~ 18 Date: 9-13-12 Sampled By: RoSinson c

Station (Well ID): BW0003C Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 08:12 Time @ End of Purging: 08:33 Total Purging Time: 21 Depth of Pump or Intake Tubing: 38.5 ft. (BTOC)

Water Level: 5.15 Total Well Depth: 40 Reference: BTOC Well diameter: 3/4 in. Volume in well: NA

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
08:12	Start	25.71	7.53	1.169	6.70	.58	-119.2	4.38	.759	CLEAR	—
08:19	.5	25.66	7.60	1.143	3.27	.56	-135.6	3.43	.742	"	"
08:26	1.0	25.61	7.62	1.144	1.92	.57	-138.1	3.36	.745	"	"
08:33	1.5	25.55	7.65	1.160	1.64	.58	-140.9	3.09	.757	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

KC34- BW0003C @38.5 20120913

Sample ID: _____ Time Collected: 08:35 Comments: VOC. MEE. TOC ~~Failed~~ pH4 & pH10 CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

J qualified DO,

.0026 X 40 + .3 =

Monitoring Well Sampling

Site: LC34 Project No.: 60055283 Task: ~~3B~~ 1881 Date: 9.13.12 Sampled By: RoSindon C

Station (Well ID) BW00030 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 09:45 Time @ End of Purging: 10:06 Total Purging Time: 21 Depth of Pump or Intake Tubing: 045.5 ft. (BTOC)

Water Level: 10 Total Well Depth: 47. Reference: BTOC Well diameter: 3/4 in. Volume in well: NA

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
09:45	Start	25.76	7.11	3.113	3.60	1.62	-284.2	1.66	2.023	Cloudy	—
09:52	.5	25.80	7.23	3.123	2.60	1.62	-275.8	1.88	2.031	"	4
09:59	1.0	25.76	7.24	3.127	1.52	1.63	-274.2	1.48	2.033	"	7
10:06	1.5	25.75	7.28	3.129	1.34	1.63	-267.9	1.35	2.034	"	4

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW00030 - 045.5 - 20120913

Sample ID: _____ Time Collected: 10:08 Comments: VOC, MEE, TOC ~~Failed~~ PH 4 & PH 10 CCV J qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

.0026 X 045.5 + .9 =

Monitoring Well Sampling

Site: LC34 Project No.: FO0552B Task: 18*1 Date: 9/13/12 Sampled By: D. Stremore

Station (Well ID): RW0008 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic ✓ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 959 Time @ End of Purging: 1020 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 52 ft. (BTOC)

Water Level: 4.98 Total Well Depth: 57 Reference: BTOC Well diameter: 6 in. Volume in well: NA

Screen 47-57

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1006	~~Start~~ .5	26.65	7.80	2.547	5.5	1.31	-246.7	.51	1.65	Clear	—
1013	1.0	26.70	7.79	2.551	4.4	1.31	-247.9	.35	1.66	"	"
1020	1.5	26.65	7.77	2.555	5.2	1.32	-248.0	.40	1.67	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-RW0008-052-0-20120913

Sample ID: _____ Time Collected: 1020 Comments: VOC, TOC, MEE, DHC ~~Failed~~ PH 7 CCV ✓

J qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= < ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)=~~5~~ 4 ___ gal

~~15~~ 55 .3

Monitoring Well Sampling

Site: LC34 Project No.: F0055L3 Task: 18#1 Date: 9/13/12 Sampled By: D. Sizemore

Station (Well ID): IW0002DI Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 901 Time @ End of Purging: 922 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 5.00 Total Well Depth: 55 Reference: BTOC Well diameter: 2 in. Volume in well: NA

screen 50-55

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
908	~~Start~~ 5	26.11	7.76	2.334	2.6	1.20	-272.2	.21	1.52	Clear	—
915	1.0	26.03	7.77	2.338	2.9	1.22	-273.2	.24	1.55	"	—
922	1.5	25.99	7.77	2.339	2.9	1.25	-275.8	.23	1.59	"	—

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-IW0002DE-20120913 Time Collected: 922 Comments: VOC, TOC, mRGE SP ~~Failed~~ CCV (pH7) J qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .4 gal

57 .3

Monitoring Well Sampling

Site: LC 34 Project No.: 60055228 Task: ~~538~~ 184 Date: 9.13.12 Sampled By: RoSinson C

Station (Well ID): BW0001E Purge Method: Pump Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) A Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: .21 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Solo-

Time @ Start of Purging: 11:30 Time @ End of Purging: 11:51 Total Purging Time: 21 Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 5.95 Total Well Depth: 54 Reference: B TOC Well diameter: 3/4 in. Volume in well: ~

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
11:30	Start	26.33	7.54	3.319	30.0	1.73	-279.6	2.12	2.157	Cloudy	—
11:37	.5	26.23	7.54	3.324	23.9	1.73	-279.3	1.68	2.161	"	"
11:44	1.0	26.23	7.53	3.331	15.3	1.74	-275.9	1.50	2.167	"	"
11:51	1.5	26.24	7.54	3.340	7.10	1.74	-273.6	1.43	2.174	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0001E-052.5-20120913

Sample ID: _____ Time Collected: 11:53 Comments: VOC. MEE. TOC ~~Failed~~ pH 4 & pH 10 CCV J qualified DO,

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= _____gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

.0026(54+.3) =

Monitoring Well Sampling

Site: LC34 Project No.: F0055 2B Task: 18*1 Date: 9/13/12 Sampled By: D. Sizemore

Station (Well ID): BW0001F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1130 Time @ End of Purging: 1151 Total Purging Time: 21 min Depth of Pump or Intake Tubing: 59.5 ft. (BTOC)

Water Level: 5.00 Total Well Depth: 61 (58-61) Reference: BTOC Well diameter: 3/4 in. Volume in well: NA

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1137	~~Start~~ 5	26.25	7.14	2.519	10.7	1.30	-165.2	.76	1.65	Clear	—
1144	1.0	26.18	7.16	2.519	6.9	1.31	-166.3	.50	1.65	"	—
1151	1.5	26.19	7.15	2.520	6.6	1.29	-175.0	.47	1.65	"	—

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

Sample ID: LC34-BW0001F-059.5-20120913 Time Collected: 1151 Comments: VOC, TOC, NFE ~~5% Factor~~ PH 7 CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ___ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 4 gal

60 · 3

J qualified

Monitoring Well Sampling

Site: LC 34 Project No.: F00552B Task: ~~38~~ 53 18*1 Date: 9.11.12 Sampled By: Robinson C

Station (Well ID): BW 0002E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) / Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo Pump Purge Rate: _____ gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 10:59 Time @ End of Purging: 11:20 Total Purging Time: 21 Depth of Pump or Intake Tubing: 52.5 ft. (BTOC)

Water Level: 6.0 Total Well Depth: 54' Reference: ~~BTOC~~ Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
10:59	Start	25.80	7.77	2.760	69.3	1.43	-200.5	1.36	1.802	Cloudy	—
11:06	.5	26.26	7.70	3.161	27.4	1.65	-217.9	1.46	1.994	"	"
11:13	1.0	26.22	7.73	3.200	8.87	1.67	-230.0	1.49	2.084	"	"
11:20	1.5	26.21	7.74	3.212	2.65	1.67	-236.0	1.44	2.088	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002E-052.5-20120911

Sample ID: _____ Time Collected: 11:22 Comments: VOC. M22. TOC ~~Fail Failed~~ J2 pH4, pH7 & DO CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .44 gal

J qualified

.0026 x 54 + .3 = .44

Monitoring Well Sampling

Site: LC 34 Project No.: F00552B Task: ~~38~~ 1891 Date: 9-11-12 Sampled By: Rosnor

Station (Well ID): BW0002F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geo pump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 MPS Water Level Meter: Heron

Time @ Start of Purging: 10:25 Time @ End of Purging: 10:46 Total Purging Time: 21 Depth of Pump or Intake Tubing: ~~595.5~~ 0591.5 ft. (BTOC)

Water Level: 5.8 Total Well Depth: ~~61~~ Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
10:25	Start	26.10	7.80	3.231	3.77	1.68	-270.0	1.07	2.105	clear	—
10:32	.5	26.15	7.82	3.249	3.24	1.69	-280.8	.82	2.114	"	"
10:39	1.0	26.24	7.83	3.294	2.31	1.72	-287.7	.72	2.141	"	"
10:46	1.5	26.23	7.82	3.301	1.85	1.72	-285.5	.71	2.146	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0002F - ~~595.5~~ 0591.5 20120911

Sample ID: _____ Time Collected: 10:48 Comments: VOC . MEE . TOC ~~Failed~~ PH4, PH7 & DO CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= .42 gal

J qualified

.0026 x ~~61~~ 157 + .3 = .42

Monitoring Well Sampling

Site: LC34 Project No.: F0055 28 Task: ~~28~~ 18*1 Date: 9.13.12 Sampled By: Robinson

Station (Well ID): BW0003E Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): GeoPump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 09:15 Time @ End of Purging: 09:36 Total Purging Time: 21 Depth of Pump or Intake Tubing: 052.5 ft. (BTOC)

Water Level: 9 Total Well Depth: 54 Reference: BTOC Well diameter: 3/4 in. Volume in well: —

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
09:15	Start	25.79	6.87	3.343	5.48	1.75	-232.4	2.66	2.174	Cloudy	—
09:22	.5	25.79	7.02	3.347	4.33	1.75	-234.9	2.23	2.176	"	"
09:29	1.0	25.75	7.23	3.355	2.22	1.75	-236.5	1.93	2.181	"	"
09:36	1.5	25.70	7.33	3.358	.92	1.75	-238.4	1.73	2.181	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34BW0003E-052.5-20120913

Sample ID: _____ Time Collected: 09:38 Comments: VOC. MEE. TOC ~~SB Total~~ Ph 4 & Ph 10 CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

.0026 X 052.5 + 3 =

J qualified

Monitoring Well Sampling

Site: LC34 Project No.: F0055 25 Task: 3 ~~8~~ 18 Date: 9.13.12 Sampled By: RBrown e

Station (Well ID): BW0003F Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: 0.1 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Heron

Time @ Start of Purging: 08:40 Time @ End of Purging: 09:08 Total Purging Time: 28 Depth of Pump or Intake Tubing: 059.5 ft. (BTOC)

Water Level: 5.55 Total Well Depth: 61 Reference: BTOC Well diameter: 3/4 in. Volume in well: NA

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU) 26.3	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
08:40	Start	25.80	6.98	2.296	[illegible]	1.24	-230.3	2.13	1.692	Cloudy	—
08:47	.5	25.77	7.30	3.294	18.5	1.73	-275.4	2.08	2.161	"	"
08:54	1.0	25.80	7:45	3.425	9.69	1.80	-278.6	1.82	2.234	"	"
09:01	1.5	25.79	7:50	3.447	7.52	1.80	-271.4	1.72	2.242	"	"
09:08	2.0	25.77	7.54	3.461	5.25	1.81	-261.6	1.63	2.252	"	"

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-BW0003F.059.5-20120913

Sample ID: _____ Time Collected: 09:10 Comments: VOC. MEE. TOC ~~Failed~~ pH 4 & pH 10 CCV

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= — gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= 0.4 gal

J qualified DO,

.0026 X 059.5 + .3 =

Monitoring Well Sampling

Site: LC34 Project No.: Fo 0552B Task: 18X1 Date: 9/13/12 Sampled By: D. Sizemore

Station (Well ID): IW0076 Purge Method: (Pump) Bailer Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ___ Peristaltic ___ Centrifugal ___ Bladder

Pump (Make & Model): Geopump Purge Rate: .07 gpm Water Quality Meter (Make & Model) YSI 556 Water Level Meter: Durham

Time @ Start of Purging: 1031 Time @ End of Purging: 1102 Total Purging Time: ~~31 min~~ Depth of Pump or Intake Tubing: 75 ft. (BTOC)

Water Level: 5.68 Total Well Depth: 80 Reference: BTOC Well diameter: 2 in. Volume in well: NA

70-80

Correction Factors: (3/4" use 0.02, 1" use 0.041, 2" use 0.163, 4" use 0.653, 6" use 1.469)

Time (hrs)	Cumulative Purge Volume (gal)	Temp (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Salinity (%)	ORP (mV)	DO (mg/L)	TDS (g/L)	Color	Comments
1036	~~Start~~ .5	26.33	7.68	2.537	18.7	1.30	-154.4	.70	1.65	Clear	
1045	1.0	26.23	7.81	2.536	7.5	1.32	-137.9	.58	1.67	Clear	
1102	1.5	26.26	7.80	2.536	6.9	1.32	-139.7	.49	1.67	"	

Note: When purging well with pump or intake tubing within the well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

For high turbidity and DO, check flow through cell for air bubbles, which may be causing erroneous readings. Turbidity should be verified visually and with a separate Turbidity meter (if available). All attempts should be made to get the parameters within the specified limits. Check water quality meter calibration before using again.

LC34-IW0076-075.0-20120913

Sample ID: _____ Time Collected: 1102 Comments: TOC, MS/MSD, VOC ~~Filtered~~ pH 7 CCV

J. qualified

When using 3/16-in. ID tubing EV= ((0.041) (0.035x tubing length))+(flow thru vol.)= ~ gal

When using ¼-in. ID tubing EV=(0.0026xtubing length)+(flow thru vol.)= < 5 gal

75 .3

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DAILY FIELD REPORT

Page 1 of 1

Project: LC34	Date: 9/10/12
Project No.: FOO552B	Task No.: 1841
Contractors: EDS	

Work Performed

Well Installation:	Sampling Soil:
Soil Borings: ~~Start~~ DPT 349, 350 & 351	Sampling SW/Sediment:
DPT:	Sampling Monitor Wells:
Well Inventory:	Sampling Hazardous Waste:
Other:	Sampling Drums:

Observations/Issues of Concern

0724 Dms Arrives Badging Station,
0745 Drillers arrive. Drillers badging information is not in the System @ Badging Station. Contact Joe Bartlett.
830 Badging is Complete, mobe to Site.
904 Arrive Site & Set up.
911 Dms Conducts Safety Discussion & Tailgate meeting EDS Crew includes: Mike Miller Driller; Chris Ashburn helper.
918 Drillers set up on DPT 0349.
1207 DPT 349 Complete, Set up on DPT 350,
1308 Phase I
1315 Begin Moderate Rain
1352 Stops Raining.
1450 Begin Phase II. All personnel take cover in vehicles.
1543 Phase 2 over, Continue DPT 350. Note: Lost Sample End Cap in DPT 350
1655 DPT 350 Complete, set up on DPT 351.

~~Plans/Future Activities~~

NOTE: Because Sampler end Cap was lost in DPT 350, only one Sampler available to Complete DPT 351.
1745 Lost 2nd, and only remaining Sampler, End Cap Down Hole. Can not continue DPTs until ~~Second~~ New replaced
Will Continue Tomorrow Am.
1815 Clean up & Depart Site

9/10/12
Signature/Date

j:\admnshare\rem-form\DAILY

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DAILY FIELD REPORT

Page 1 of 1

Project: FSTOP LC34
Project No.: F00552B
Contractors: FWD

Date: 9/11/12
Task No.: 18 T

Work Performed

Well Installation:
Soil Borings: SB 351
DPT:
Well Inventory:
Other:

Sampling Soil:
Sampling SW/Sediment:
Sampling Monitor Wells:
Sampling Hazardous Waste:
Sampling Drums:

Observations/Issues of Concern

630 Arrive office & prep for Soil & GW Sampling
CR Arrives @ 645 & Calibrates WQMs.
745 Meet Drillers @ Badging Station. Make to Site
810 Arrive Site. Conduct Tailgate meeting w/ Safety discussion.
820 Begin drilling DPT 351 40'-60'. CR Begins GW Sampling
955 Drilling DPT 351 Complete; Drillers begin Grouting borehole & Cleaning up.
1153 Removed data Logger from Trailer.
1302 Removed data logger From RWB
1323 Removed data logger From RW1 - String Broken, had to "fish" out.

Plans/Future Activities

9/11/12
Signature/Date

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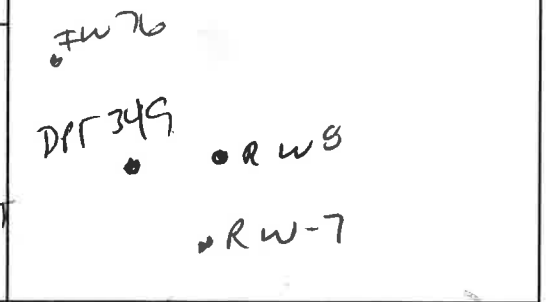
BORING LOG

BOREHOLE LOCATION MAP



BORING NO.: DPT0349=346=332 PROJECT NO.: F00552B PAGE 1 OF 1

SITE: LC34 DATE: 9/10/12

TOOLS AND METHOD: Macro Core D.P. BIT DIA: 2.3"

TOTAL DEPTH: 60 GROUNDWATER DEPTH: ~5' BLS

DRILLING COMPANY: EOS RIG: Geoprobe 6610DT

DRILLERS: Mike Miller LOGGERS: D. Gizemore

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Gray Silty fine SAND SM w/ fragmented shell (5%)	Core	31	0.6	
		32	0	
		33	0	
		34	0.6	
		35	5.9	
		36	11.2	
	Core	37	5.0	-- Grab sample collected @ 1044 DPT0349-37.0
		38	9.8	
		39	20.4	
		40	6.5	-- Grab sample collected @ 1047-DPT0349-40.0
		41	3.4	
		42	4.5	
	Core	43	5.1	-- Grab sample collected
		44	3.4	@ 1103-DPT0349-43.5
Gray Sandy CLAY w/ med. CL Plasticity w/ some Shell (<1%) below 44'		45	5.0	-- Grab sample collected @ 1107-DPT 0349-045.0
		46	5.2	-- Grab Sample collected
	Core	47	* 24.6	@ 1133-DPT 0349-46.5
		48	6.1	-- Grab Sample collected
		49	2.1	@ 1136-DPT 0349-46.0
Gray Silty fine SAND below 49' w/ some frag. shell (5%) SM		50	2.0	
		51	0.2	
	Core	52	0	
		53	0.	-- Grab sample collected
Same		54	0.2	@ 1148-DPT 0349-53.0
		55	0.	
Same		56	0	
		57	0	
	Core	58	0	
		59	0	
		60	0	
				Boring terminated @ 60' and Abandoned w/ Grout
				* Grab Sample collected @ 1809-DPT 349-47.0
				○ = DHC sample collected

P:\ADMINISTRATIVE\FIELD\FIELD FORMS\BORINGLOG PG1.DWG (7 June 2007) eguyer

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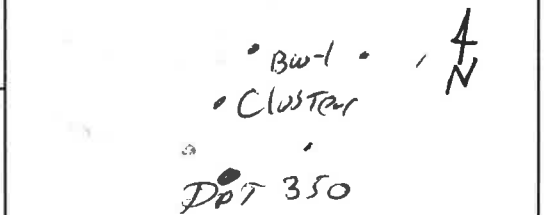
BORING LOG

BOREHOLE LOCATION MAP



BORING NO.: DPT 0350-347-333 PROJECT NO.: F00552B PAGE 1 OF 1

SITE: LC34 DATE: 9/10/12

TOOLS AND METHOD: MacroCore, Direct push BIT DIA: 2.3"

TOTAL DEPTH: 60 GROUNDWATER DEPTH: ~5' BLS

DRILLING COMPANY: FGS RIG: Geoprobe 6610 DT

DRILLERS: Mike Miller LOGGERS: D Sremac

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	DRILLING LOG
Gray fine SAND w/ Frag shell (25%), SM	Core	31	0	
		32	1.4	
		33	0.1	
		34	13.5	
		35	2.7	
		36	5.4	
	Core	37	6.9	-- Grab sample collected @1352 DPT 350-37.0
		38	7.2	
		39	6.5	
		40	7.1	-- Grab sample collected @1411 - DPT 350 - 040.0
		41	6.3	
	Core	42	7.1	
		43	5.8	
Gray CLAY w/ Fragmented Shell (10%) med. plasticity below 44', CL		44	4.2	-- Grab sample collected @1418 - DPT 350-044.0
		45	5.1	
		46	3.4	-- Grab sample collected @1441 - DPT 350-045.5
	Core	47	7.4	-- Grab sample collected @1450 - DPT 350-047.0
		48	2.5	
Gray Silty fine SAND w/ Fragmented shell (20%) below, SM 48'		49	1.6	-- Grab sample collected @1506 - DPT 350-048.5
		50	2.5	~~Grab~~ Sremac Sample Collected @ 1636
SAMPLE	Core	51	1.2	
		52	0	
		53	0.5	-- Grab sample collected @ 1643 DPT 350-053.0
		54	0.1	
		55	0	
SAMPLE		56	0	
	Core	57	0	
		58	0	
		59	0	
		60	0	
				Boring term @ 60' and abandoned w/ Grout
				○ DHC sample collected

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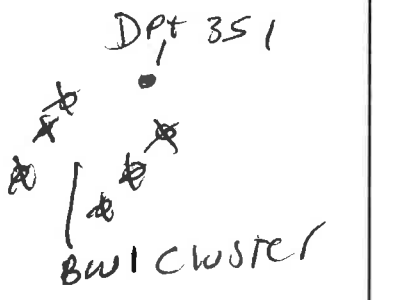
BORING LOG

BOREHOLE LOCATION MAP



BORING NO.: DPT 0351-34B-33A PROJECT NO.: 1005228 PAGE 1 OF 1

SITE: LC34 DATE: 9/10/12

TOOLS AND METHOD: Macro Core DP BIT DIA: 2.3"

TOTAL DEPTH: 60 GROUNDWATER DEPTH: 5' BLS

DRILLING COMPANY: FOS RIG: Geoprobe 6620DT

DRILLERS: Mike Miller LOGGERS: D. Stremmel

LITHOLOGY LOG	GRAPHIC LOG	DEPTH SCALE	PID (ppm)	~~DRILLING LOG~~ Sample depths
Gray silty fine SAND w/ Frag shell (5%) SM	Core	31	1.6	
		32	2.5	
		33	3.1	
		34	2.5	
		35	5.0	Grab Sample Collected @ 1711 - DPT 351-034.5
		36	5.1	
	Core	37	4.9	Grab Sample collected @ 1734 - DPT 351-37.0
		38	5.4	
		39	9.3	
		40	2.7	Grab Sample collected @ 1739 - DPT 351-40.6
		41	3.0	
	Core	42	2.9	
		43	5.1	
		44	4.8	DHC sample collected @ 901 DPT 351 - ~~43.5~~ 45.0
		45	6.1	Grab sample collected @ 913 - DPT 351-45.5
Gray CLAY w/ Frag. shell (1%) below 45.5' ch		46	0	
	Core	47	0	Grab sample collected @ 919 - DPT 351-47.0
		48	0	
		49	0	Grab sample collected @ 929 - DPT 351 48.5
Gray silty Med SAND w/ Frag. shell (5%) SM below 49'		50	0	
		51	0	
	Core	52	0	
		53	0	Grab Sample Collected @ 938 DPT 351-053.0
		54	0	
		55	0	
		56	0	
	Core	57	0	
		58	0	
		59	0	
		60	0	

30'-40' on 9/10/12

40'-60' on 9/11/12

Boring team. @ 60' and abandoned w/ Grout

DHC - 45' @ 901

DHC - 47' @ 919

* DHC sample @ 48.5 collected @ 929

ATTACHMENT C-3

O&M FORMS

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician:	**Joe Bartlett**	**Date:**	**3/14/2011**	**Time:**	**1040**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	NA	
Collect water levels from injection wells	Monthly	NA	
Clean solar panels	As Needed	NA	
Clean flow meters	As Needed	NA	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)
RW0007	2.1	87
RW0008	2.3	87

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	27	27	IJ0014	26	27
IJ0015	26	27	IJ0016	27	27
IJ0017	26	27	IJ0018	22	27
IJ0019	28	27	IJ0020	28	27
IJ0021	28	27	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [divide total flow rate by 5 for rate for each well.]

Battery	Voltage (V)	Percent Charge (%)	**Task that need to be completed during the next scheduled visit**
1a	14.28	100.00	
1b	13.63	100.00	replace PVC carbon bung connector with galvanized cast iron X3
2a	13.52	100.00	1 1/4" male thread - 3/4" female thread
2b	14.48	100.00	

Comments

Recycle Timer - red LED - slow steady blink - system ON; quick, short blink - system OFF

hide-a-key under right side of trailer door.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician:	**Joe Bartlett**	**Date:**	**3/21/2011**	**Time:**	**1700**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	NA	
Clean flow meters	As Needed	NA	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)
RW0007	2.3	16252
RW0008	2.6	14251

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	24	27	IJ0014	30	28
IJ0015	26	27	IJ0016	28	28
IJ0017	26	26	IJ0018	22	27
IJ0019	25	27	IJ0020	31	28
IJ0021	26	27	IJ0022	26	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [divide total flow rate by 5 for rate for each well.]

Battery	Voltage (V)	Percent Charge (%)
1a	12.54	94.00
1b	12.52	94.00
2a	12.54	96.00
2b	12.57	96.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician:	Joseph Bartlett	Date:	4/1/2011	Time:	1436

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)
RW0007	2.5	31048
RW0008	2.2	28078

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	28	28	IJ0014	27	28
IJ0015	28	28	IJ0016	28	28
IJ0017	28	28	IJ0018	28	28
IJ0019	27	28	IJ0020	28	28
IJ0021	29	28	IJ0022	26	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [divide total flow rate by 5 for rate for each well.]

Battery	Voltage (V)	Percent Charge (%)
1a	12.57	92.00
1b	12.56	96.00
2a	12.49	92.00
2b	12.49	92.00

Task that need to be completed during the next scheduled visit

Comments

Carbon Effluent Samples collected at 1450 EW0007 - EF001, EW0008 - EF002

O&M not performed on 28 March due to weather (thunderstorms all week). Flow totalizer reading collected on 3/29/2011: EW0007 - 30723 gal., EW0008 - 27842 gal.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician:	**Joseph Bartlett**	**Date:**	**4/7/2011**	**Time:**	**1442**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)
RW0007	2.5	40970
RW0008	2.5	35456

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	28	28	IJ0014	30	30
IJ0015	28	28	IJ0016	30	30
IJ0017	28	28	IJ0018	30	30
IJ0019	28	28	IJ0020	30	30
IJ0021	28	28	IJ0022	30	30

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [divide total flow rate by 5 for rate for each well.]

Battery	Voltage (V)	Percent Charge (%)
1a	12.48	92.00
1b	12.46	92.00
2a	13.34	100.00
2b	13.20	100.00

Task that need to be completed during the next scheduled visit

Comments

carbon changed

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician:	**Joe Bartlett**	**Date:**	**4/18/2011**	**Time:**	**900**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	No	System turned off at 0915 - baseline flux phase complete
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	Yes	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)
RW0007	2.4	58731
RW0008	2.2	44085

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	27	27	IJ0014	24	26
IJ0015	27	27	IJ0016	24	26
IJ0017	28	27	IJ0018	25	26
IJ0019	28	27	IJ0020	25	26
IJ0021	25	27	IJ0022	24	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [divide total flow rate by 5 for rate for each well.]

Battery	Voltage (V)	Percent Charge (%)
1a	11.76	93.00
1b	11.74	92.00
2a	12.48	92.00
2b	12.54	94.00

Task that need to be completed during the next scheduled visit
Install hour meters

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician:	**Joseph Bartlett**	**Date:**	**8/9/2011**	**Time:**	**1100**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	system restarted after being shut down for injection activites
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	new filters installed
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	58,771	0
RW0008	2.8	44,113	0

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	28	IJ0014	28	30
IJ0015	30	28	IJ0016	26	30
IJ0017	30	28	IJ0018	32	30
IJ0019	26	28	IJ0020	36	30
IJ0021	28	28	IJ0022	32	30

Battery	Voltage (V)	Percent Charge (%)
1a	13.98	100
1b	13.56	100
2a	13.69	100
2b	13.85	100

Task that need to be completed during the next scheduled visit

Comments

installed hour meters

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 08/12/2011**	**Time: 0913**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	installed new filters, cleaned used filters off-site (hose bib previously used has been
Collect water levels from injection wells	Monthly	No	removed)
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	Yes	used DI water and pipe cleaner (left on-site)

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.5	65561	42.7	IJ0013	29	26	IJ0014	26	26
RW0008	2.6	51232	45.6	IJ0015	26	26	IJ0016	25	26
				IJ0017	24	26	IJ0018	28	26
				IJ0019	26	26	IJ0020	26	26
				IJ0021	26	26	IJ0022	25	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)	**Task that need to be completed during the next scheduled visit**
1a	11.92	0.00	- 0% charge reading, however pumps are still operation. May be indication of problem with battery meter.
1b	11.92	0.00	
2a	11.79	0.00	
2b	11.80	0.00	

Comments

- significant biofouling (black/smokey colored groundwater) in RW0007 pipe lines

- minor biofouling in RW0008 pipe lines

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 08/18/2011**	**Time: 0916**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	"load disconnect" light on charge controller suggesting battery charge reached 0%,
System operational on departure (yes/no)	Weekly	Yes	causing the system to shut off until 100% charge reached.
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	system forced ON by turning system off, then on using toggle switches and
Clean filters	Weekly	Yes	disconnecting/reconnecting battery terminals
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	Yes	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.3	74258	103.4	IJ0013	24	24	IJ0014	27	28
RW0008	2.6	59187	98.9	IJ0015	24	24	IJ0016	30	28
				IJ0017	26	24	IJ0018	27	28
				IJ0019	27	24	IJ0020	28	28
				IJ0021	20	24	IJ0022	26	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)	**Task that need to be completed during the next scheduled visit**
1a	12.08	25.00	charge read at 1130 to observe charging rate:
1b	12.08	25.00	1a - 12.30 V, 61%
2a	11.96	6.00	1b - 12.24 V, 51%
2b	11.96	6.00	2a - 12.04 V, 18%
			2b - 12.04 V, 18%

Comments

IDW - pallet #: 183809, drum #: 183866

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 08/24/2011**	**Time: 1040**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	load disconnect light on
System operational on departure (yes/no)	Weekly	Yes	forced on by diconnecting/reconnecting battery terminals
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.4	82434	161.5	IJ0013	24	24	IJ0014	30	28
RW0008	2.6	67015	151.5	IJ0015	24	24	IJ0016	28	28
				IJ0017	20	24	IJ0018	28	28
				IJ0019	26	24	IJ0020	30	28
				IJ0021	28	24	IJ0022	26	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)	**Task that need to be completed during the next scheduled visit**
1a	12.27	56.00	
1b	12.24	51.00	
2a	12.19	45.00	
2b	12.20	45.00	

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 08/31/2011**	**Time: 0930**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	load disconnect light on - Forced system on
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	Yes	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.4	90012	214.3	IJ0013	26	25	IJ0014	27	27
RW0008	2.5	74235	199.6	IJ0015	25	25	IJ0016	27	27
				IJ0017	26	25	IJ0018	29	27
				IJ0019	26	25	IJ0020	23	27
				IJ0021	24	25	IJ0022	30	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)	**Task that need to be completed during the next scheduled visit**
1a	12.33	66.00	
1b	12.33	66.00	
2a	12.33	66.00	
2b	12.35	66.00	

Comments

- collected data logger data

- data logger in RW0008 gone, most likely fell to bottom of well

- pulled RW0008 pump out, data logger attached

- repaired fencing

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 09/08/2011**	**Time: 0940**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	Load disconnect light on - forced on
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	101352	288.8
RW0008	2.6	84039	265.7

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	27	26	IJ0014	28	27
IJ0015	26	26	IJ0016	27	27
IJ0017	30	26	IJ0018	26	27
IJ0019	26	26	IJ0020	26	27
IJ0021	22	26	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.17	39.00
1b	12.14	32.00
2a	12.16	39.00
2b	12.17	39.00

Task that need to be completed during the next scheduled visit

need to order more filters soon: Flow max pleated filter cartridge. 2 3/4" dia., 20 micron

Comments

Battery Analyzer: Argus Analyzer, model # AA350.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 09/15/2011**	**Time: 1422**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters.
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	112997	365.1
RW0008	2.4	94424	335.7

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	25	28	IJ0014	27	26
IJ0015	26	28	IJ0016	25	26
IJ0017	26	28	IJ0018	27	26
IJ0019	23	27	IJ0020	29	26
IJ0021	38	28	IJ0022	24	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.67	94.00
1b	12.73	96.00
2a	12.70	96.00
2b	12.73	98.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 09/22/11**	**Time: 0952**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	load disconnect light on
System operational on departure (yes/no)	Weekly	Yes	forced on
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	Yes	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	123841	436.4
RW0008	2.6	103828	400

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	28	27	IJ0014	26	27
IJ0015	27	27	IJ0016	27	27
IJ0017	24	26	IJ0018	23	27
IJ0019	26	27	IJ0020	28	27
IJ0021	28	27	IJ0022	27	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.08	25.00
1b	12.11	25.00
2a	12.08	25.00
2b	12.11	25.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 09/28/11**	**Time: 1236**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	132387	492.5
RW0008	2.6	111063	449.5

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	25	27	IJ0014	27	27
IJ0015	30	27	IJ0016	27	27
IJ0017	26	27	IJ0018	28	27
IJ0019	32	27	IJ0020	26	27
IJ0021	22	27	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.48	71.00
1b	12.48	84.00
2a	12.43	76.00
2b	12.46	80.00

Task that need to be completed during the next scheduled visit

Comments

collected data from data loggers, redeployed

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 10/05/11**	**Time: 0935**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	Load disconnect light on
System operational on departure (yes/no)	Weekly	Yes	Forced on
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	Replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.5	144138	569.8	IJ0013	28	27	IJ0014	27	27
RW0008	2.6	121025	518	IJ0015	24	27	IJ0016	26	27
				IJ0017	26	26	IJ0018	26	27
				IJ0019	25	27	IJ0020	28	27
				IJ0021	29	27	IJ0022	26	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	11.96	6.00
1b	11.96	6.00
2a	11.95	2.00
2b	11.95	2.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	Date: 10/13/11	Time: 1046

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	153299	629.2
RW0008	2.6	129060	571.8

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	27	27	IJ0014	26	28
IJ0015	30	27	IJ0016	28	27
IJ0017	24	26	IJ0018	28	28
IJ0019	27	27	IJ0020	27	28
IJ0021	25	27	IJ0022	28	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.11	32.00
1b	12.08	25.00
2a	12.20	45.00
2b	12.22	51.00

Task that need to be completed during the next scheduled visit

Comments

Fence repaired

overcast weather during week

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 10/20/11**	**Time: 1219**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	160697	676.7
RW0008	2.6	135468	612.7

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	30	29	IJ0014	28	27
IJ0015	26	29	IJ0016	26	26
IJ0017	28	28	IJ0018	27	27
IJ0019	27	29	IJ0020	27	27
IJ0021	31	29	IJ0022	26	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.84	100.00
1b	12.81	100.00
2a	12.75	98.00
2b	12.78	100.00

Task that need to be completed during the next scheduled visit

Comments

overcast weather during week

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 10/27/11**	**Time: 1233**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	Replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	172662	754.6
RW0008	2.6	145857	678.4

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	28	IJ0014	26	27
IJ0015	30	28	IJ0016	26	27
IJ0017	24	28	IJ0018	28	27
IJ0019	28	28	IJ0020	28	27
IJ0021	28	28	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.35	66.00
1b	12.35	71.00
2a	12.62	92.00
2b	12.65	94.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 11/03/11**	**Time: 1408**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with new filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	180418	805.1
RW0008	2.6	153165	726.5

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	30	28	IJ0014	26	27
IJ0015	27	28	IJ0016	26	27
IJ0017	26	28	IJ0018	27	27
IJ0019	30	28	IJ0020	25	27
IJ0021	26	28	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.16	51.00
1b	12.24	51.00
2a	12.27	56.00
2b	12.27	56.00

Task that need to be completed during the next scheduled visit

Comments

Water accumulation in IJ17 &18 vault box. Leaking water funneled into vault box through secondary containment tubing. Approx. 5 gallons from vault box poured into IDW drum # 185539. Repaired leak at male-male connector by applying additional hose clamps.

Repaired leaking manifold tubing.

Collected Datalogger data.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	Date: 11/10/11	Time: 1155

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	188701	859.9
RW0008	2.6	160793	776.7

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	26	IJ0014	28	27
IJ0015	26	26	IJ0016	26	27
IJ0017	30	26	IJ0018	28	27
IJ0019	24	26	IJ0020	27	27
IJ0021	26	26	IJ0022	26	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.86	100.00
1b	12.89	100.00
2a	12.81	100.00
2b	12.81	100.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 11/17/11**	**Time: 0857**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	Load Disconnect' light on
System operational on departure (yes/no)	Weekly	Yes	Forced on
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	New filters installed
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.5	199088	928.0	IJ0013	28	27	IJ0014	28	27
RW0008	2.6	170200	838.7	IJ0015	29	27	IJ0016	28	27
				IJ0017	26	27	IJ0018	28	27
				IJ0019	26	27	IJ0020	25	27
				IJ0021	26	27	IJ0022	30	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.28	56.00
1b	12.28	56.00
2a	12.08	25.00
2b	12.08	25.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 11/22/11**	**Time: 1232**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	Yes	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	205617	970.2
RW0008	2.5	175870	876.3

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	28	27	IJ0014	27	26
IJ0015	26	27	IJ0016	28	26
IJ0017	25	26	IJ0018	30	26
IJ0019	26	27	IJ0020	24	26
IJ0021	28	27	IJ0022	24	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.94	100.00
1b	12.67	94.00
2a	12.52	87.00
2b	12.52	84.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	Date: 12/1/11	Time: 0920

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	216612	1043.1
RW0008	2.6	185735	940.6

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	27	IJ0014	25	26
IJ0015	26	27	IJ0016	28	26
IJ0017	30	27	IJ0018	26	26
IJ0019	27	27	IJ0020	26	26
IJ0021	26	27	IJ0022	26	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.04	11.00
1b	12.03	11.00
2a	12.48	84.00
2b	12.48	84.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 12/7/11**	**Time: 1007**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	225042	1097.6
RW0008	2.6	193040	987.3

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	27	28	IJ0014	26	27
IJ0015	30	28	IJ0016	26	26
IJ0017	24	27	IJ0018	27	27
IJ0019	26	28	IJ0020	27	27
IJ0021	29	28	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.14	39.00
1b	12.14	39.00
2a	12.46	80.00
2b	12.48	80.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 12/15/11**	**Time: 1202**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	"Load Disconnect" light on
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	Replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.6	232700	1147.3	IJ0013	26	26	IJ0014	27	27
RW0008	2.6	199720	1030.0	IJ0015	26	26	IJ0016	26	26
				IJ0017	25	26	IJ0018	27	27
				IJ0019	27	26	IJ0020	27	27
				IJ0021	27	26	IJ0022	26	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.28	56.00
1b	12.27	56.00
2a	12.27	51.00
2b	12.28	56.00

Task that need to be completed during the next scheduled visit

Comments

Weather - 70s, ovecast

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 12/22/11**	**Time: 1040**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	"load disconnect" light on
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	240538	1198.6
RW0008	2.5	206694	1074.8

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	28	26	IJ0014	26	27
IJ0015	25	26	IJ0016	28	26
IJ0017	26	26	IJ0018	26	27
IJ0019	26	26	IJ0020	26	27
IJ0021	26	26	IJ0022	26	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.27	56.00
1b	12.28	56.00
2a	12.22	51.00
2b	12.28	56.00

Task that need to be completed during the next scheduled visit

Comments

data logger data collected

weather: 70s, overcast

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 1/5/12**	**Time: 1534**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	RW7 not running; RW8 running
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	249543	1298.4
RW0008	2.6	222277	1175.3

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	30	28	IJ0014	28	27
IJ0015	28	28	IJ0016	25	26
IJ0017	28	28	IJ0018	27	27
IJ0019	27	28	IJ0020	28	27
IJ0021	28	28	IJ0022	27	27

Battery	Voltage (V)	Percent Charge (%)
1a	13.21	100.00
1b	13.26	100.00
2a	12.56	90.00
2b	12.59	90.00

Task that need to be completed during the next scheduled visit

Comments

- Upon arrival, RW7 pump was not running. Inspected wiring - ok. Switched source wiring, pump was not responsive.

The pump has reached The end of its useful life. Replaced pump for RW7 with spare.

- Repaired construction fencing.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: Joseph Bartlett	**Date: 1/16/12**	**Time: 0953**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	265098	1398.5
RW0008	2.5	234235	1252.6

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	25	28	IJ0014	26	26
IJ0015	29	28	IJ0016	25	24
IJ0017	26	27	IJ0018	26	26
IJ0019	28	28	IJ0020	26	26
IJ0021	26	28	IJ0022	25	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.11	25.00
1b	12.09	25.00
2a	12.01	11.00
2b	12.03	11.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 1/26/12**	**Time: 1230**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	Yes	see below
Clean solar panels	As Needed	Yes	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	279302	1489.8
RW0008	2.6	246358	1332.2

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	32	28	IJ0014	27	27
IJ0015	27	28	IJ0016	26	27
IJ0017	26	28	IJ0018	27	27
IJ0019	28	28	IJ0020	28	27
IJ0021	30	28	IJ0022	29	27

Battery	Voltage (V)	Percent Charge (%)
1a	12.46	80.00
1b	12.46	80.00
2a	12.72	96.00
2b	12.72	96.00

Task that need to be completed during the next scheduled visit

Comments

Collected data logger levels. Collected groundwater levels manually at time of data logger collection (system was on during time of collection):

RW07: 12.78 ft BTOC @ 1259; RW08: 23.12 ft BTOC @1311; IW2D1: 6.21 ft BTOC @1318; IW2D: 5.85 ft BTOC @ 1325; IJ17: 4.67 ft BTOC @1335

IJ18: 3.77 ft BTOC @ 1342; IJ13: 3.67 ft BTOC @ 1349; IJ14: 5.96 ft BTOC @1400

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J Bartlett	**Date: 2/6/12**	**Time: 1407**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	293427	1580.5
RW0008	2.6	258227	1411.1

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	28	IJ0014	26	27
IJ0015	30	28	IJ0016	26	27
IJ0017	29	29	IJ0018	27	27
IJ0019	31	28	IJ0020	27	27
IJ0021	26	28	IJ0022	27	27

Battery	Voltage (V)	Percent Charge (%)
1a	12.54	87.00
1b	12.54	87.00
2a	12.64	92.00
2b	12.67	94.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J Bartlett	**Date: 2/14/12**	**Time: 0923**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	No	system will be restarted 2/17/12
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	302185	1636.7
RW0008	2.5	265760	1461.2

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	30	27	IJ0014	26	26
IJ0015	24	27	IJ0016	26	26
IJ0017	28	27	IJ0018	26	26
IJ0019	24	27	IJ0020	26	26
IJ0021	28	27	IJ0022	26	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.12	32.00
1b	12.11	32.00
2a	12.08	25.00
2b	12.09	25.00

Task that need to be completed during the next scheduled visit

Comments

Data logger data collected 2/16/2012.

Water levels - IJ13: 5.85 ft BTOC @ 0921 (unable to collect data logger data - connection timed out); IJ14: 6.10 ft BTOC @ 1222; IW2D1: 6.28 ft BTOC @ 1231

IW2D: 6.14 ft BTOC @ 1239; RW7: 5.47 ft BTOC @ 1245; RW8: 5.33 ft BTOC @ 1253; IJ17: 5.43 ft BTOC @ 1302; IJ18: 5.70 ft BTOC @1307

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J Bartlett	Date: 3/2/12	Time: 1030

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	Replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.6	322727	1768.6	IJ0013	26	28	IJ0014	26	27
RW0008	2.6	283067	1574.2	IJ0015	30	28	IJ0016	26	27
				IJ0017	27	28	IJ0018	26	27
				IJ0019	29	28	IJ0020	28	27
				IJ0021	27	28	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)	Task that need to be completed during the next scheduled visit
1a	12.44	76.00	
1b	12.46	80.00	
2a	12.56	87.00	
2b	12.59	90.00	

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 3/15/12**	**Time: 1300**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	RW7 not running, RW8 running
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.8	328054	1957.4
RW0008	2.6	299640	1681.9

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	29	30	IJ0014	28	28
IJ0015	32	30	IJ0016	28	28
IJ0017	30	30	IJ0018	28	28
IJ0019	30	30	IJ0020	28	28
IJ0021	32	30	IJ0022	28	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	14.06	100.00
1b	13.72	100.00
2a	12.60	90.00
2b	12.64	92.00

Task that need to be completed during the next scheduled visit

Comments

Replaced pump for RW0007

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 4/5/12**	**Time: 1300**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	RW8 pumping; RW7 off
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	Replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.7	347393	2210.5	IJ0013	30	30	IJ0014	28	28
RW0008	2.6	330755	1881.4	IJ0015	28	30	IJ0016	28	28
				IJ0017	30	29	IJ0018	28	28
				IJ0019	30	30	IJ0020	28	28
				IJ0021	28	30	IJ0022	28	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	13.69	100.00
1b	13.71	100.00
2a	12.76	98.00
2b	12.75	98.00

Task that need to be completed during the next scheduled visit

Comments

Tubing for RW7 had slipped off of 90° located at well top of casing. Will calculate operating time using flow. When reconnected, observed pumping rate to be very slow. Pulled pump, noticed thick cake layer on sediment sock on pump. Washed off and redeployed pump. Flow observed to be normal after cleaning.

Leaking for manifold, replaced cracked tubing segments.

Collected data logger data and removed all data loggers except 2 remaining in RW7 and RW8.

Repaired construction fencing.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	Date: 4/19/12	Time: 1025

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	368404	2346
RW0008	2.5	349626	2001

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	26	IJ0014	25	26
IJ0015	27	26	IJ0016	25	26
IJ0017	26	26	IJ0018	25	26
IJ0019	24	26	IJ0020	26	26
IJ0021	24	26	IJ0022	26	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.16	39.00
1b	12.12	25.00
2a	12.56	87.00
2b	12.60	90.00

Task that need to be completed during the next scheduled visit

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 5/4/12**	**Time: 1055**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.6	391657	2496.5
RW0008	2.6	370668	2135.4

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	27	IJ0014	28	27
IJ0015	28	27	IJ0016	25	26
IJ0017	26	27	IJ0018	28	27
IJ0019	30	27	IJ0020	28	27
IJ0021	28	27	IJ0022	27	27

Battery	Voltage (V)	Percent Charge (%)
1a	12.43	80.00
1b	12.43	76.00
2a	12.52	84.00
2b	12.56	87.00

Task that need to be completed during the next scheduled visit

Comments

repaired cracked manifold hose.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	Date: 5/17/12	Time: 0936

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.6	407750	2601.8	IJ0013	26	28	IJ0014	27	27
RW0008	2.5	386050	2234.7	IJ0015	26	28	IJ0016	25	26
				IJ0017	25	27	IJ0018	27	27
				IJ0019	26	28	IJ0020	26	27
				IJ0021	28	28	IJ0022	28	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.17	45.00
1b	12.17	39.00
2a	12.30	66.00
2b	12.36	71.00

Task that need to be completed during the next scheduled visit

Comments

- cleaned sediment sock for RW0007 after observing lower than normal flow.

- measurements were collected after cleaning of the sediment sock for RW07

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 6/7/12**	**Time: 0851**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	Load disconnect light on
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.5	434684	2778.9	IJ0013	22	27	IJ0014	26	26
RW0008	2.5	411500	2400.1	IJ0015	26	27	IJ0016	26	26
				IJ0017	24	26	IJ0018	26	27
				IJ0019	28	26	IJ0020	28	26
				IJ0021	26	26	IJ0022	28	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.27	56.00
1b	12.24	51.00
2a	12.30	66.00
2b	12.33	66.00

Task that need to be completed during the next scheduled visit

Comments

- weather overcast, 70s

- repaired leaking segment of manifold

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 6/21/12**	**Time: 1230**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	Both pumps down upon arrival
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.6	445425	2932.7	IJ0013	26	26	IJ0014	32	28
RW0008	2.6	420846	2517.7	IJ0015	28	26	IJ0016	30	28
				IJ0017	28	27	IJ0018	32	28
				IJ0019	26	26	IJ0020	26	28
				IJ0021	29	26	IJ0022	28	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.89	100.00
1b	13.05	100.00
2a	13.61	100.00
2b	13.68	100.00

Task that need to be completed during the next scheduled visit

Comments

- checked wiring for pump RW7, pulled pumps and tested by hooking directly to battery - noise like motor is trying to turn, but jammed. Replaced pump for RW7.

- checked wiring for pump RW8, pulled pump and tested - unresponsive. Replaced pump for RW8

- repaired leaking manifold tubing.

- readings colleced at 1555.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 7/10/12**	**Time: 1005**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	RW7 running, RW8 not running.
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	No	
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.5	471,010	3106.7	IJ0013	32	26	IJ0014	28	28
RW0008	2.6	434,550	2681.1	IJ0015	26	26	IJ0016	28	28
				IJ0017	24	25	IJ0018	28	28
				IJ0019	25	26	IJ0020	28	28
				IJ0021	25	26	IJ0022	28	28

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.27	61.00
1b	12.28	56.00
2a	12.88	100.00
2b	12.89	100.00

Task that need to be completed during the next scheduled visit

Comments

- Inspected piping in RW8, pipe was disconnected at elbow at TOC of RW. Hose clamp must have rusted through and fell off. Reconnected piping and replaced hose clamp. System operated normally.

- Cleared tall grass and weeds from wells and piping runs.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	Date: 7/19/12	Time: 0926

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	Yes	

Extraction Wells				Injection Wells[2]					
	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)	Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
RW0007	2.4	481880	3180.9	IJ0013	25	25	IJ0014	25	26
RW0008	2.5	445710	2753.0	IJ0015	24	25	IJ0016	24	26
				IJ0017	26	25	IJ0018	26	26
				IJ0019	22	25	IJ0020	24	26
				IJ0021	27	25	IJ0022	25	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)	Task that need to be completed during the next scheduled visit
1a	12.38	71.00	
1b	12.36	71.00	
2a	12.59	90.00	
2b	12.62	92.00	

Comments

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	Date: 8/2/12	Time: 0920

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	No	"load disconnect" light on
System operational on departure (yes/no)	Weekly	Yes	forced on by disconnecting/reconnecting battery terminals
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.4	500950	3311.7
RW0008	2.5	464280	2870.3

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	26	25	IJ0014	27	26
IJ0015	25	25	IJ0016	25	26
IJ0017	22	25	IJ0018	26	26
IJ0019	26	25	IJ0020	26	26
IJ0021	26	25	IJ0022	26	26

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.32	51.00
1b	12.25	45.00
2a	12.64	66.00
2b	12.64	90.00

Task that need to be completed during the next scheduled visit

Comments

Drums remaining onsite: Pallet 183805 - Drums 183808, 183807; Pallet 185408 - Drums 190485, 188680

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	Date: 8/16/12	Time: 1350

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	Replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.5	519394	3438.5
RW0008	2.6	482120	2981.1

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	25	26	IJ0014	30	29
IJ0015	26	26	IJ0016	30	29
IJ0017	26	26	IJ0018	28	29
IJ0019	24	26	IJ0020	28	29
IJ0021	24	26	IJ0022	28	29

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.65	94.00
1b	12.65	92.00
2a	13.02	100.00
2b	12.94	92.00

Task that need to be completed during the next scheduled visit

Comments

Repaired leaking manifold tubing.

Geosyntec consultants

Launch Complex 34 O&M

Launch Complex 34, SWMU CC054
Cape Canaveral Air Force Station, Florida

Technician: J. Bartlett	**Date: 09/06/12**	**Time: 1000**

Maintenance & Monitoring

Item	Frequency	Completed (yes/no)	Comments or Notes
System operational on arrival (yes/no)[1]	Weekly	Yes	
System operational on departure (yes/no)	Weekly	Yes	
Inspect wiring and connection	Bi-weekly	Yes	
Inspect piping and connections for leaks	Weekly	Yes	
Clean filters	Weekly	Yes	replaced with cleaned filters
Collect water levels from injection wells	Monthly	No	
Clean solar panels	As Needed	No	
Clean flow meters	As Needed	No	

Extraction Wells

	Flow Rate (gpm)	Volume Produced (gallons)	Hour Meter Reading (hours)
RW0007	2.4	543077	3605.6
RW0008	2.6	504939	3120.5

Injection Wells[2]

Shallow (32-42 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final	Deep (47-57 ft BLS)	Flow Rate (gph) Initial	Flow Rate (gph) Final
IJ0013	22	24	IJ0014	28	27
IJ0015	25	24	IJ0016	26	27
IJ0017	23	24	IJ0018	28	27
IJ0019	24	24	IJ0020	28	27
IJ0021	24	24	IJ0022	27	27

1. System on a recycle timer set for 40 min/20 min off. If system is off, make sure system is not in 20 min off period.

2. Use flow meters to distribute flow evenly between injection wells. [multiply total flow rate (gpm) by 12 for rate for each well (gph).]

Battery	Voltage (V)	Percent Charge (%)
1a	12.28	56.00
1b	12.24	51.00
2a	12.59	90.00
2b	12.59	90.00

Task that need to be completed during the next scheduled visit

Comments

repaired leaking manifold tubing

marked locations for 12 mth DPT soil sampling

utility locate with Sean O'Brien and Eddie Crayton

Geosyntec consultants

ATTACHMENT C-4

HYDROGRAPHS

Figure C-4-1A

Water Level in RW0007. Month 2. September 2011

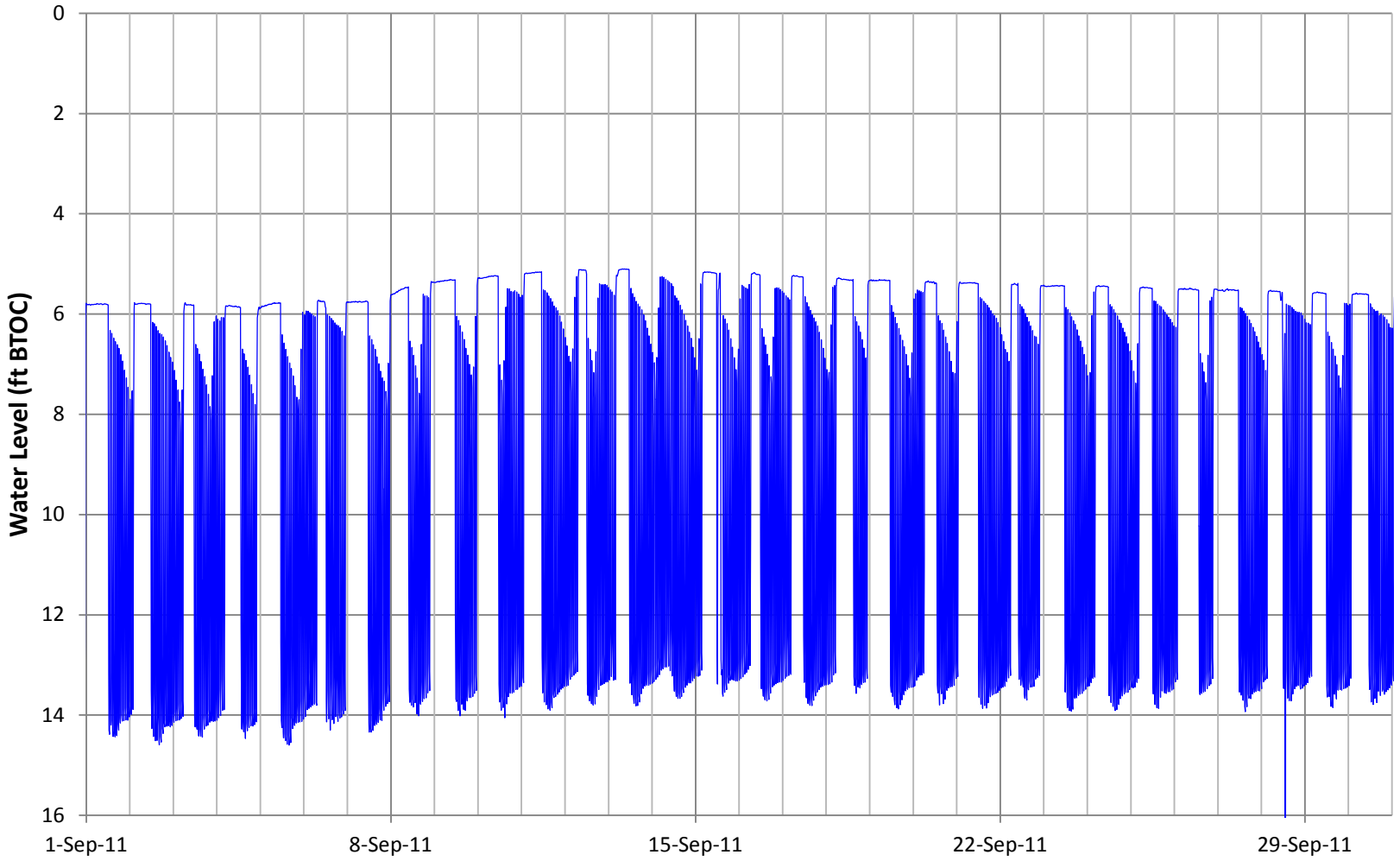


Figure C-4-1B

Water Level in RW0007. Month 3. October 2011

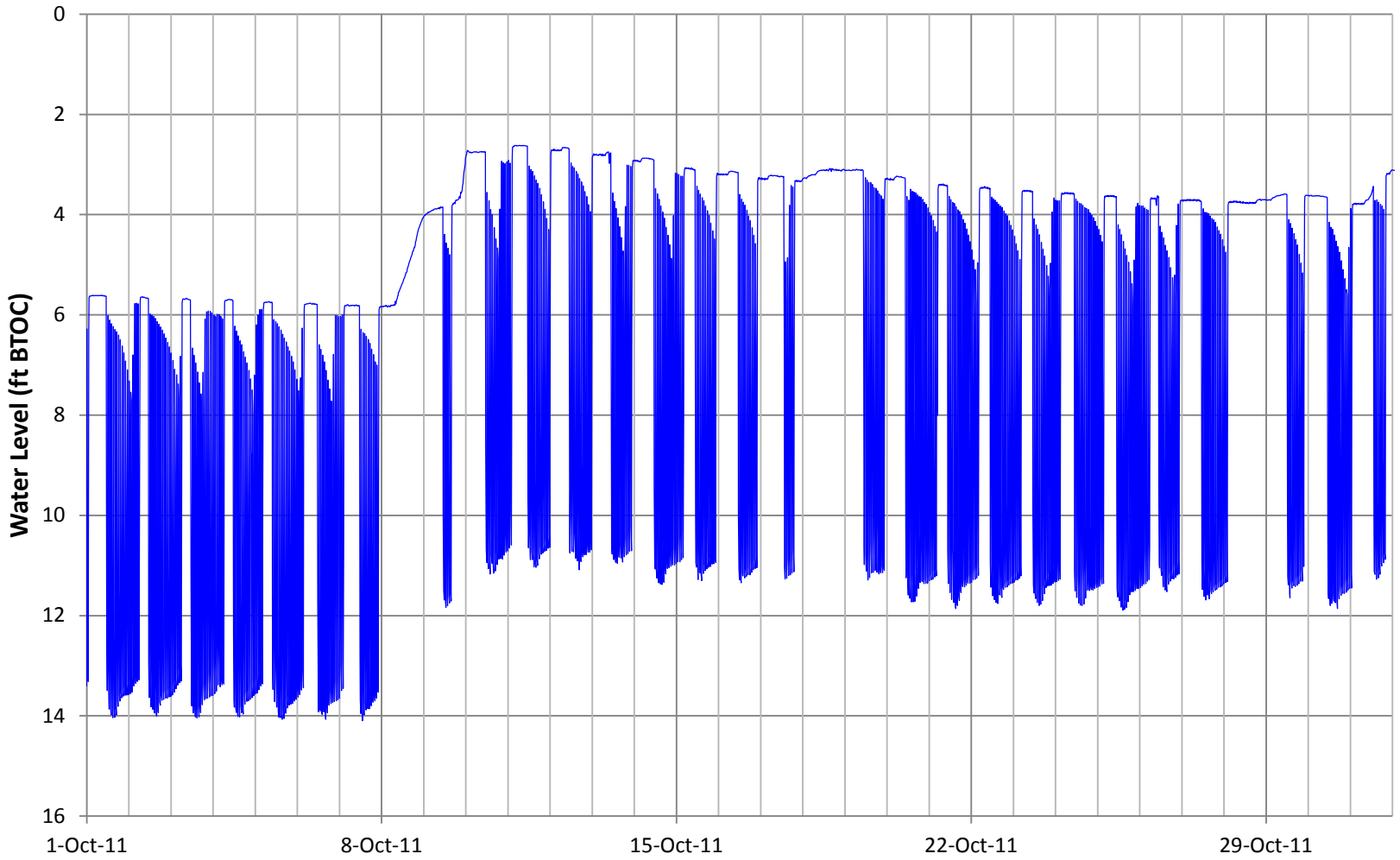


Figure C-4-1C

Water Level in RW0007. Month 4. November 2011

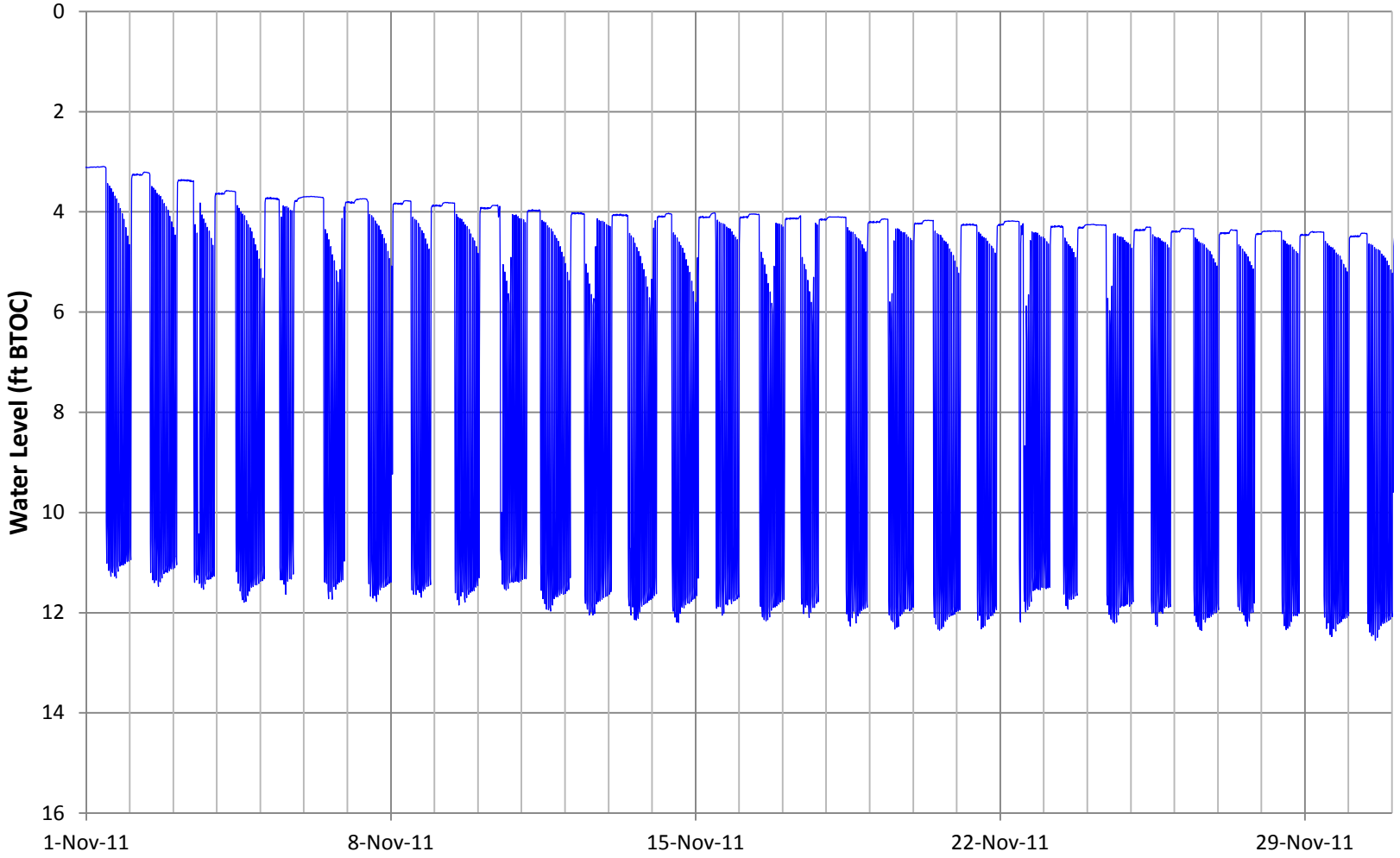


Figure C-4-1D

Water Level in RW0007. Month 5. December 2011

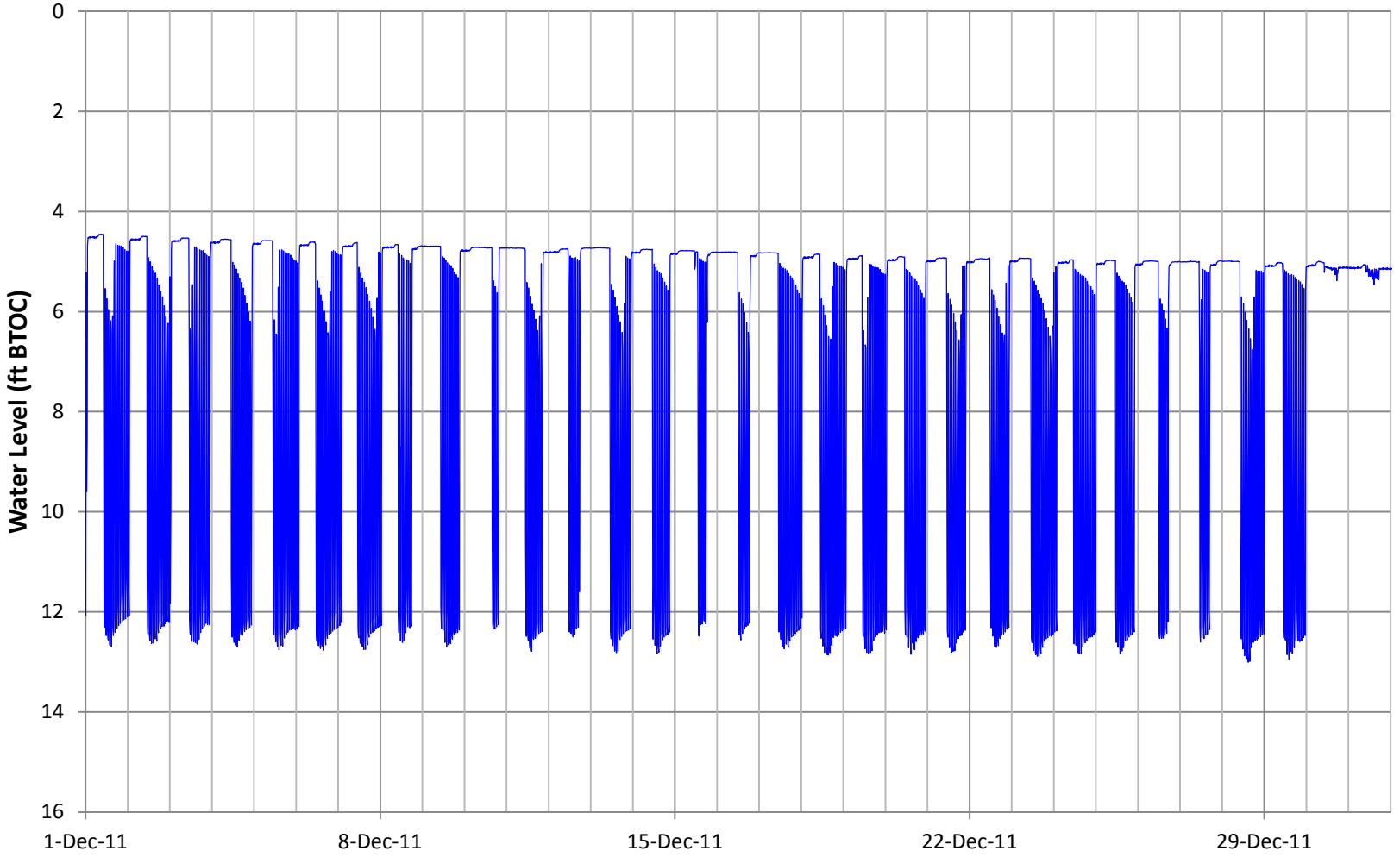


Figure C-4-1E

Water Level in RW0007. Month 6. January 2012

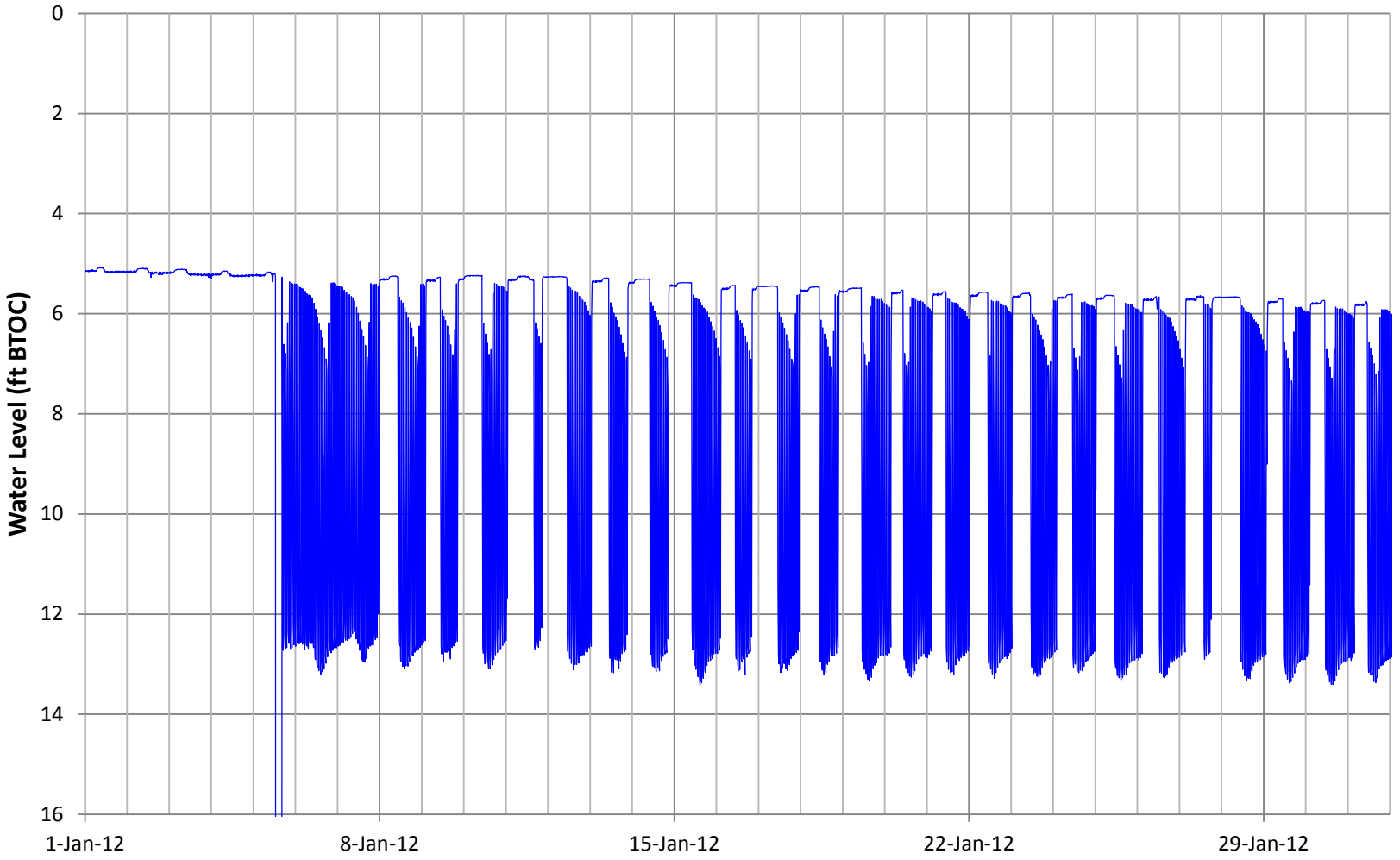


Figure C-4-1F

Water Level in RW0007. Month 7. February 2012

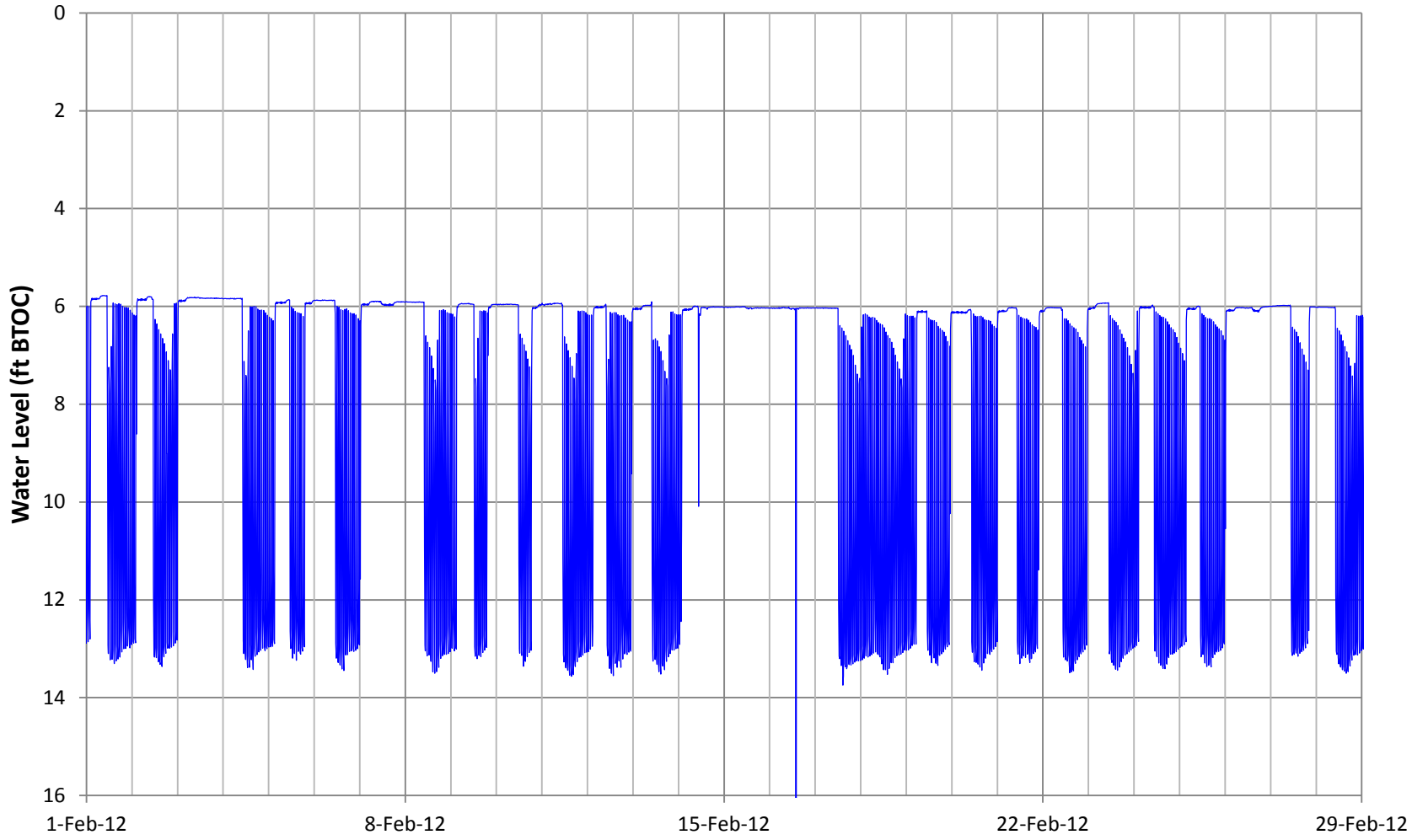


Figure C-4-1G

Water Level in RW0007. Month 8. March 2012

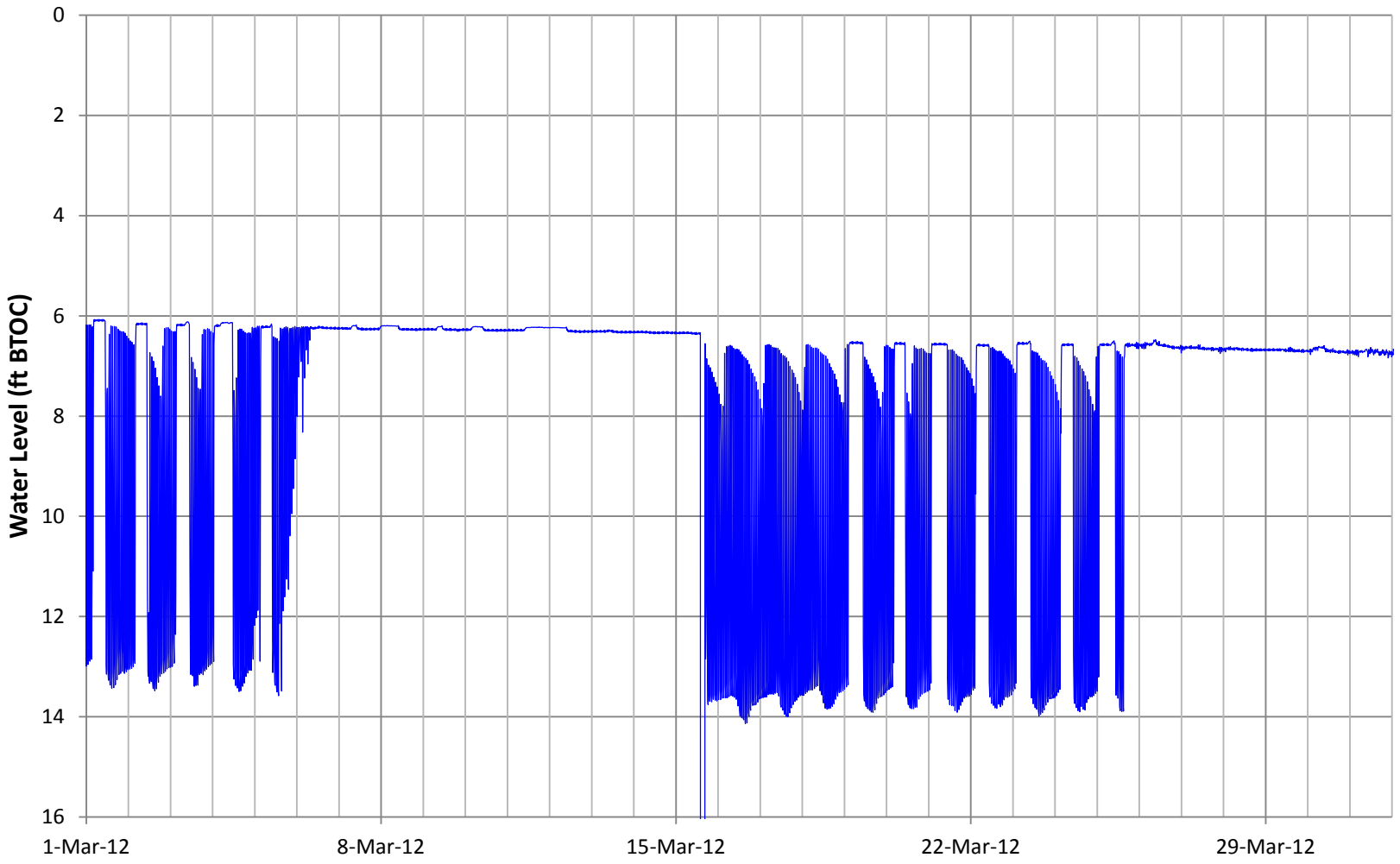


Figure C-4-1H

Water Level in RW0007. Month 9. April 2012

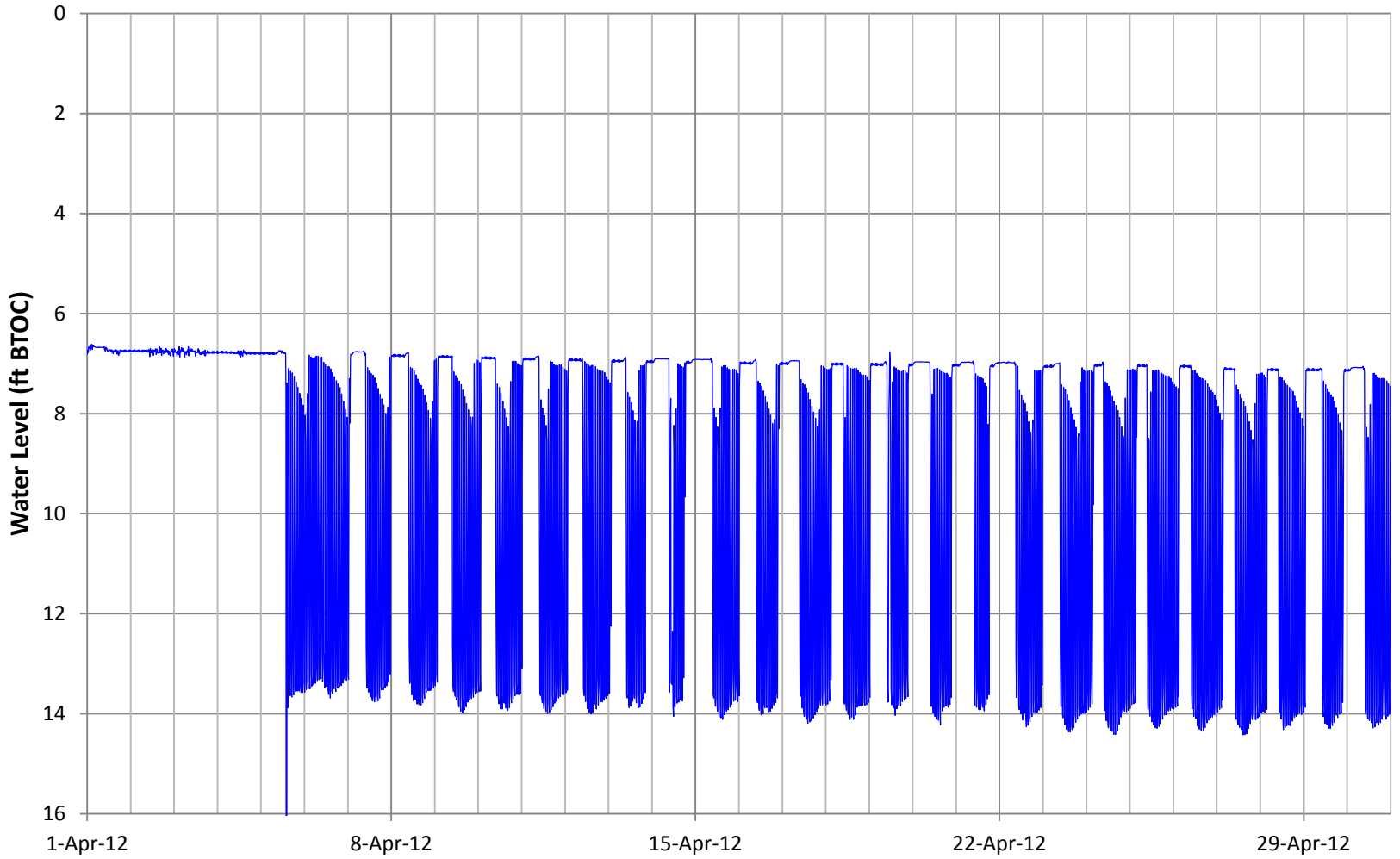


Figure C-4-1l

Water Level in RW0007. Month 10. May 2012

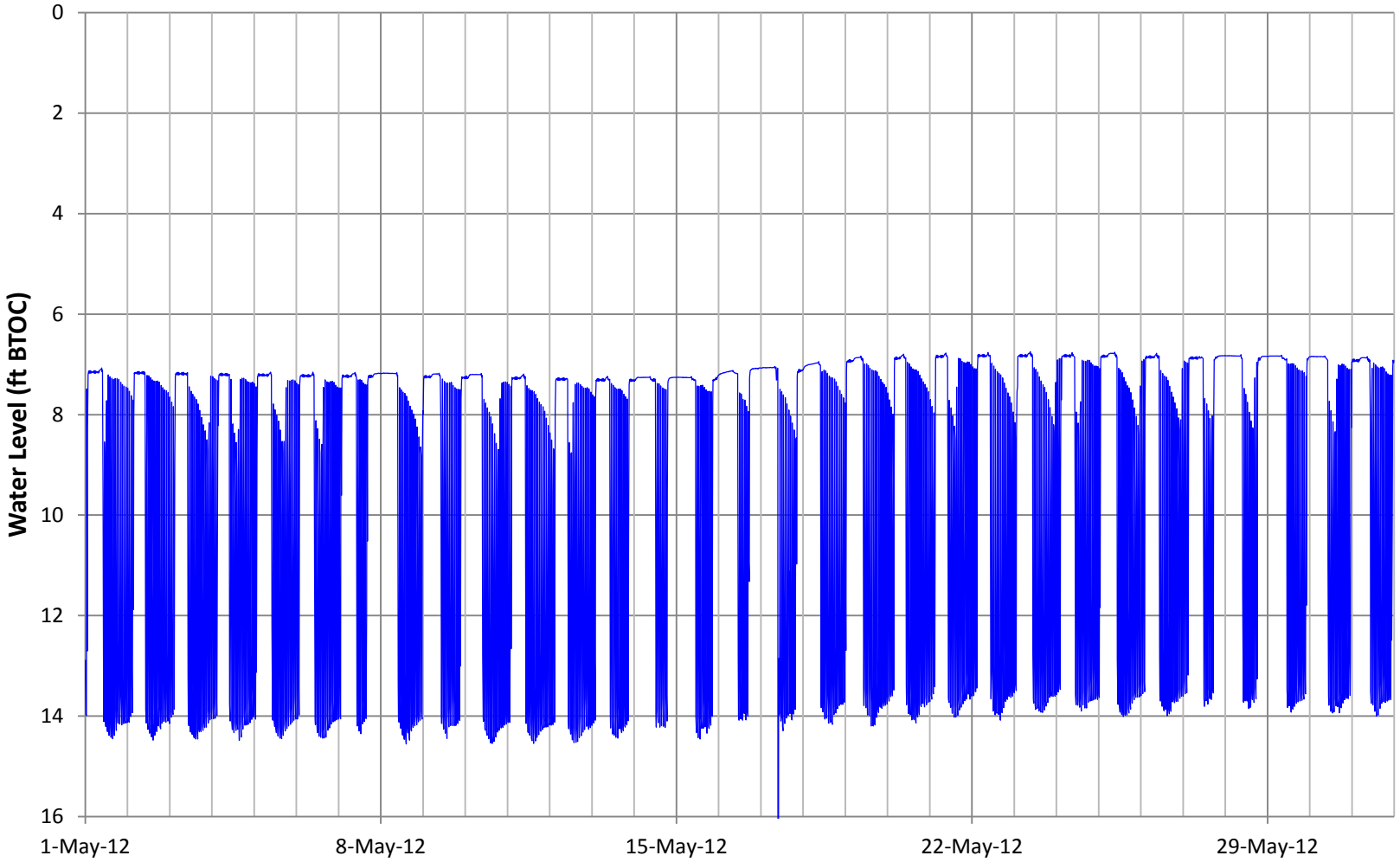


Figure C-4-1J

Water Level in RW0007. Month 11. June 2012

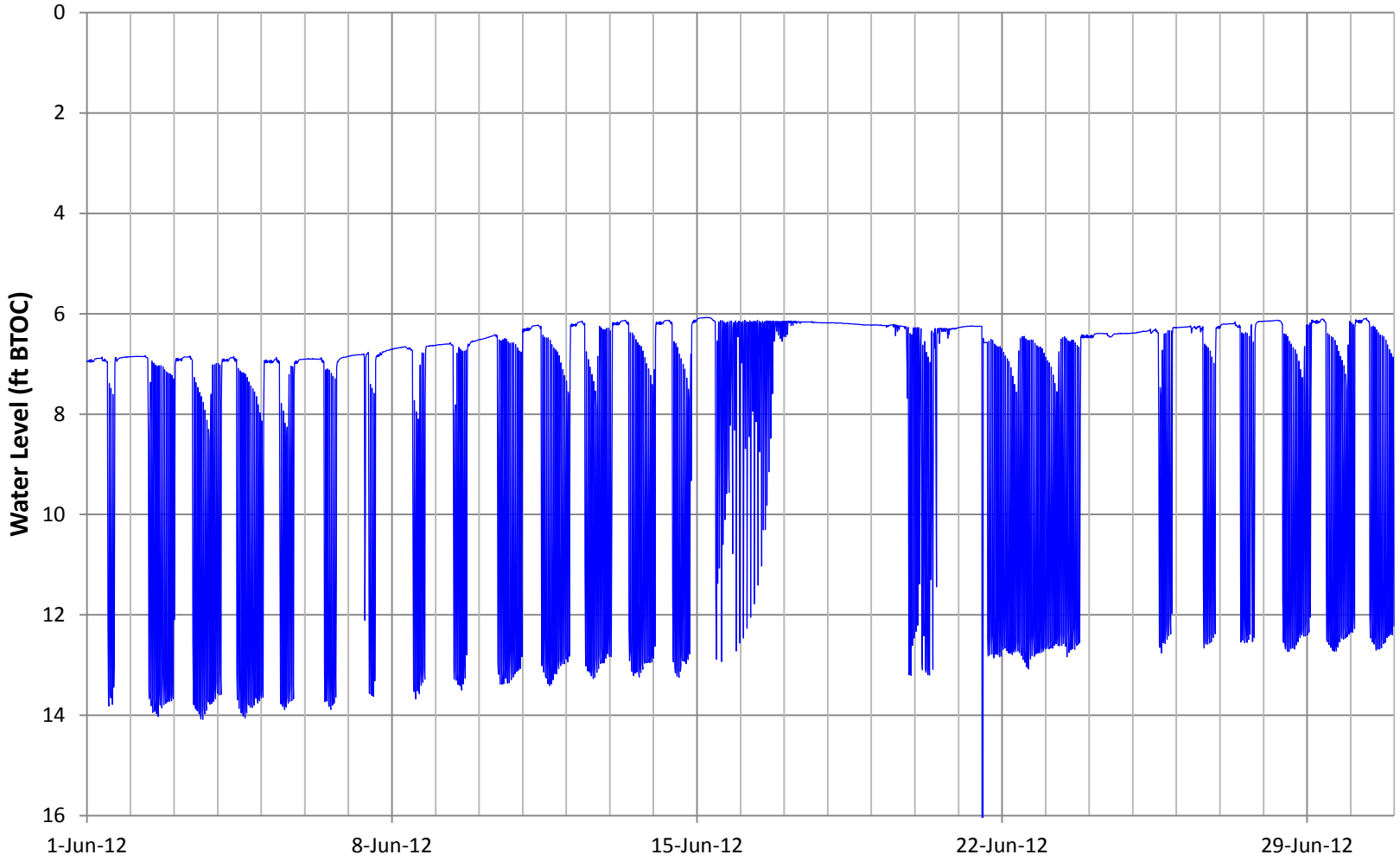


Figure C-4-1K

Water Level in RW0007. Month 12. July 2012

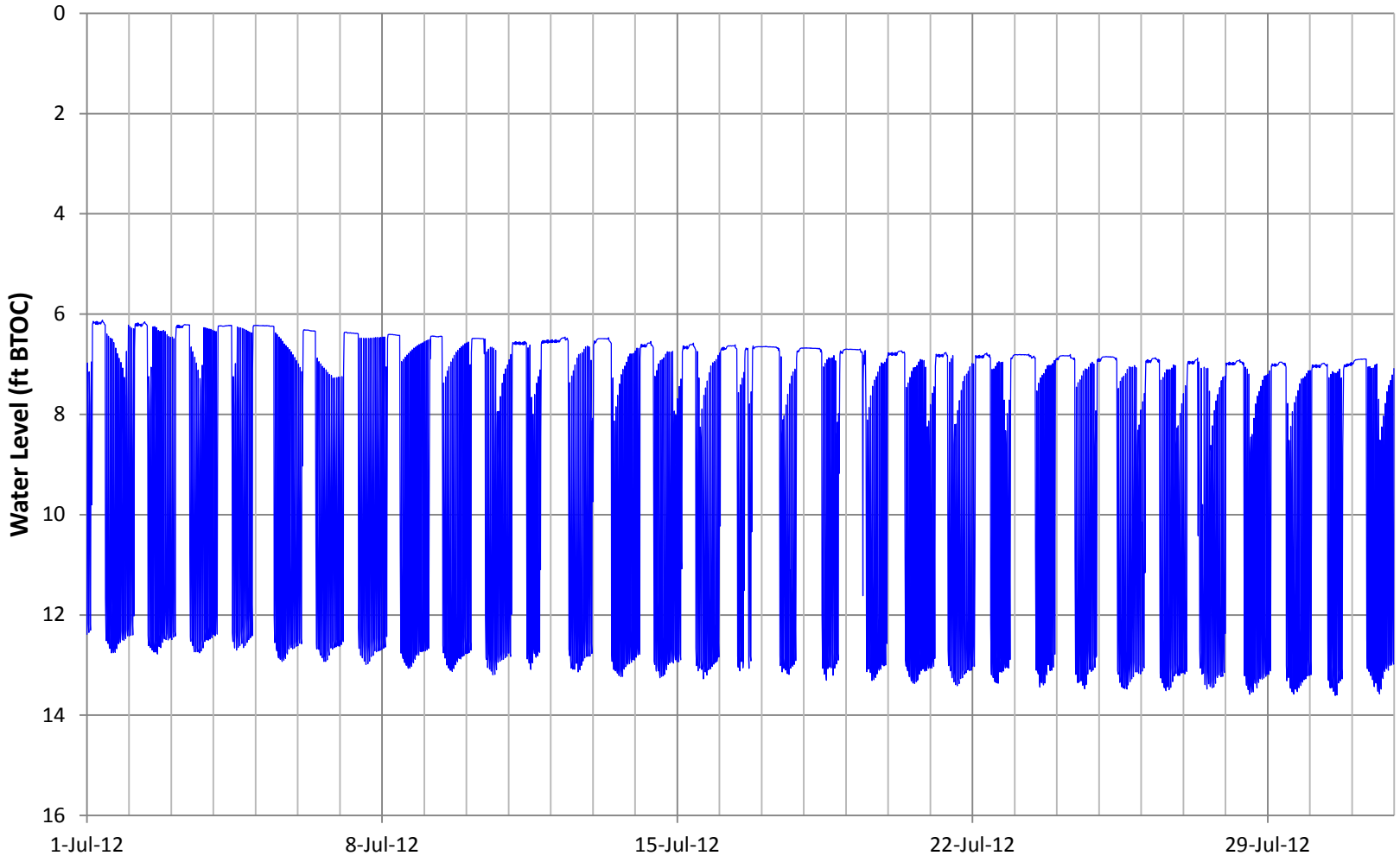


Figure C-4-1L

Water Level in RW0007. Month 13. August 2012

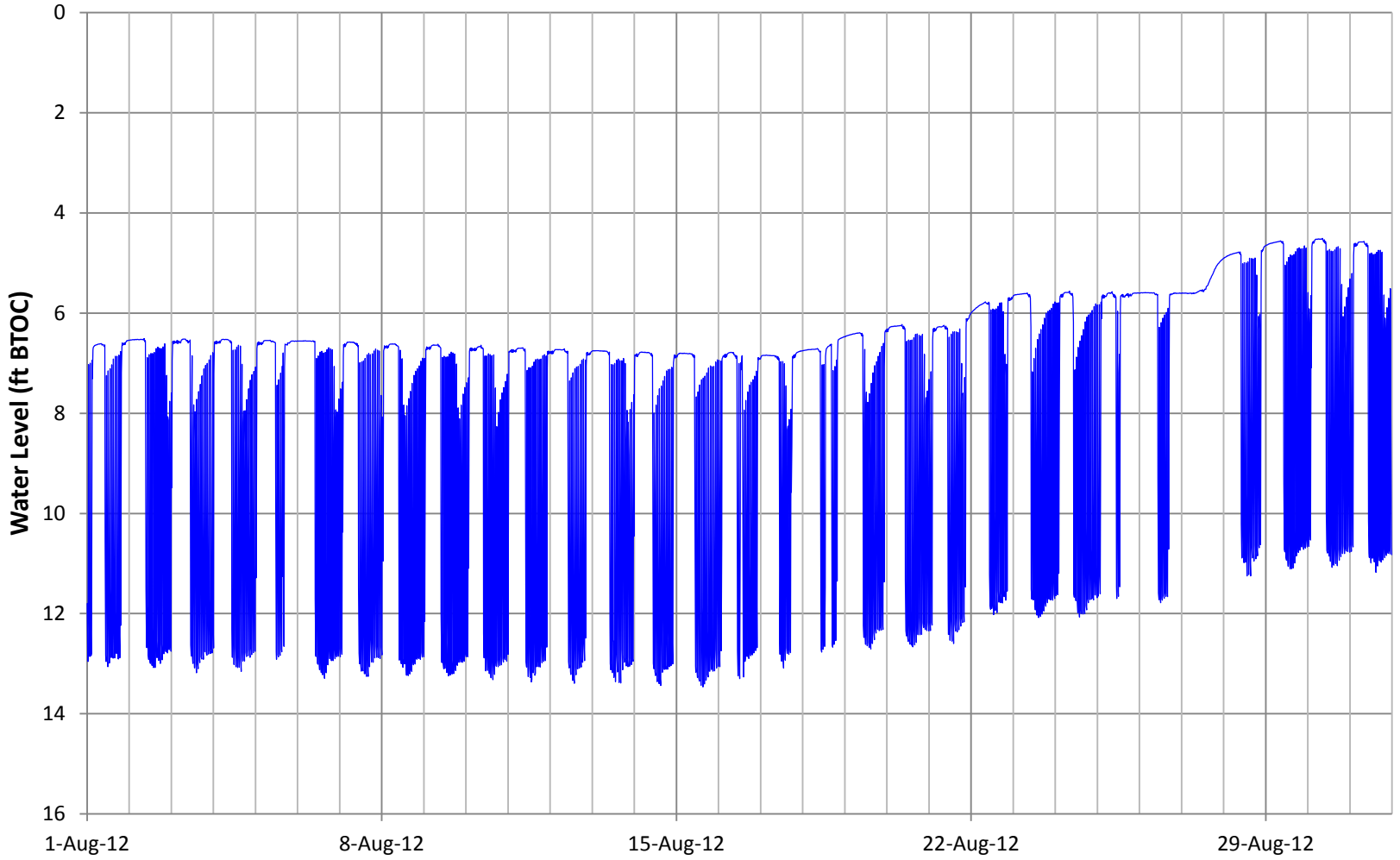


Figure C-4-1M

Water Level in RW0007. Month 14. September 2012

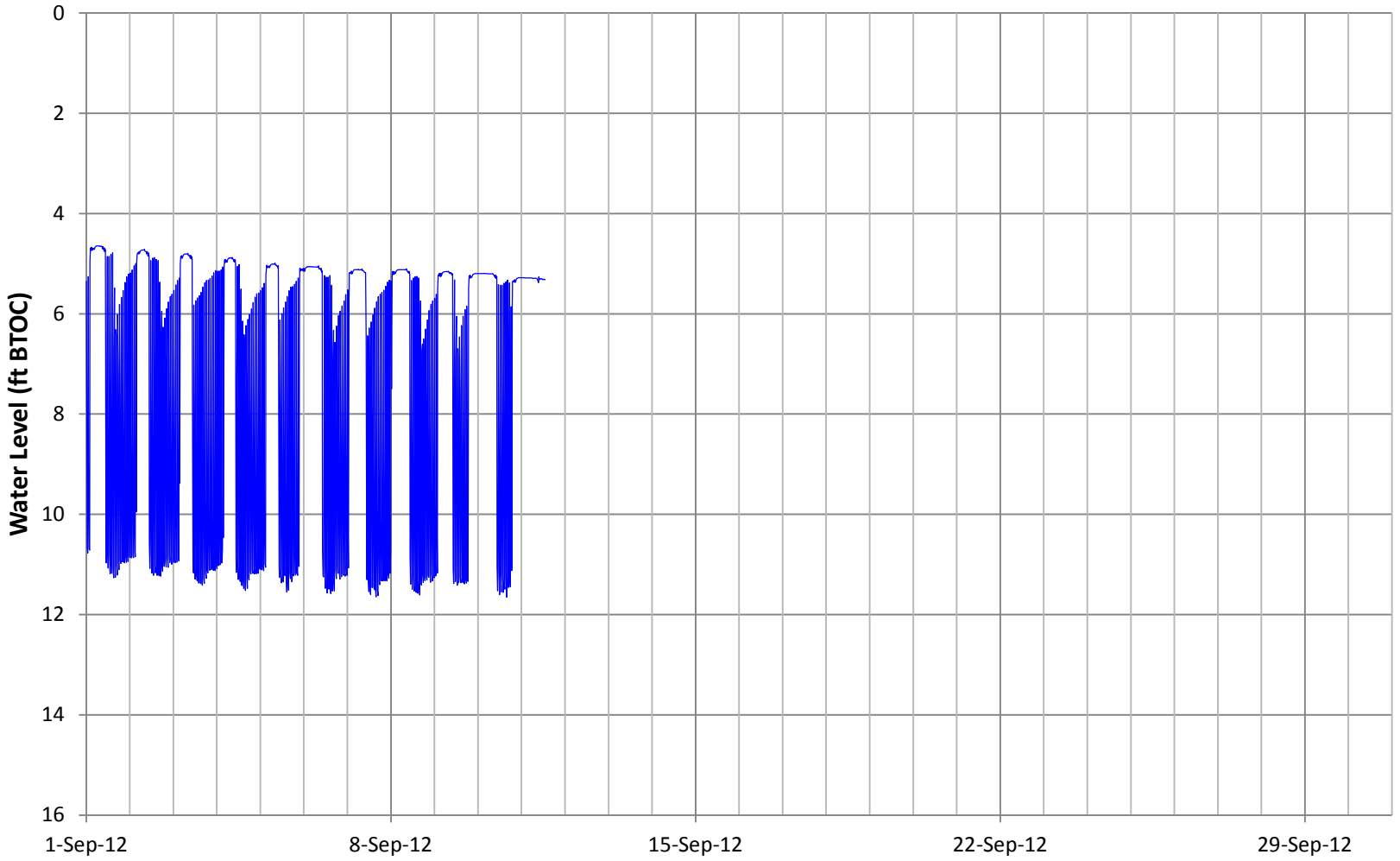


Figure C-4-2A

Water Level in RW0008. Month 2. September 2011

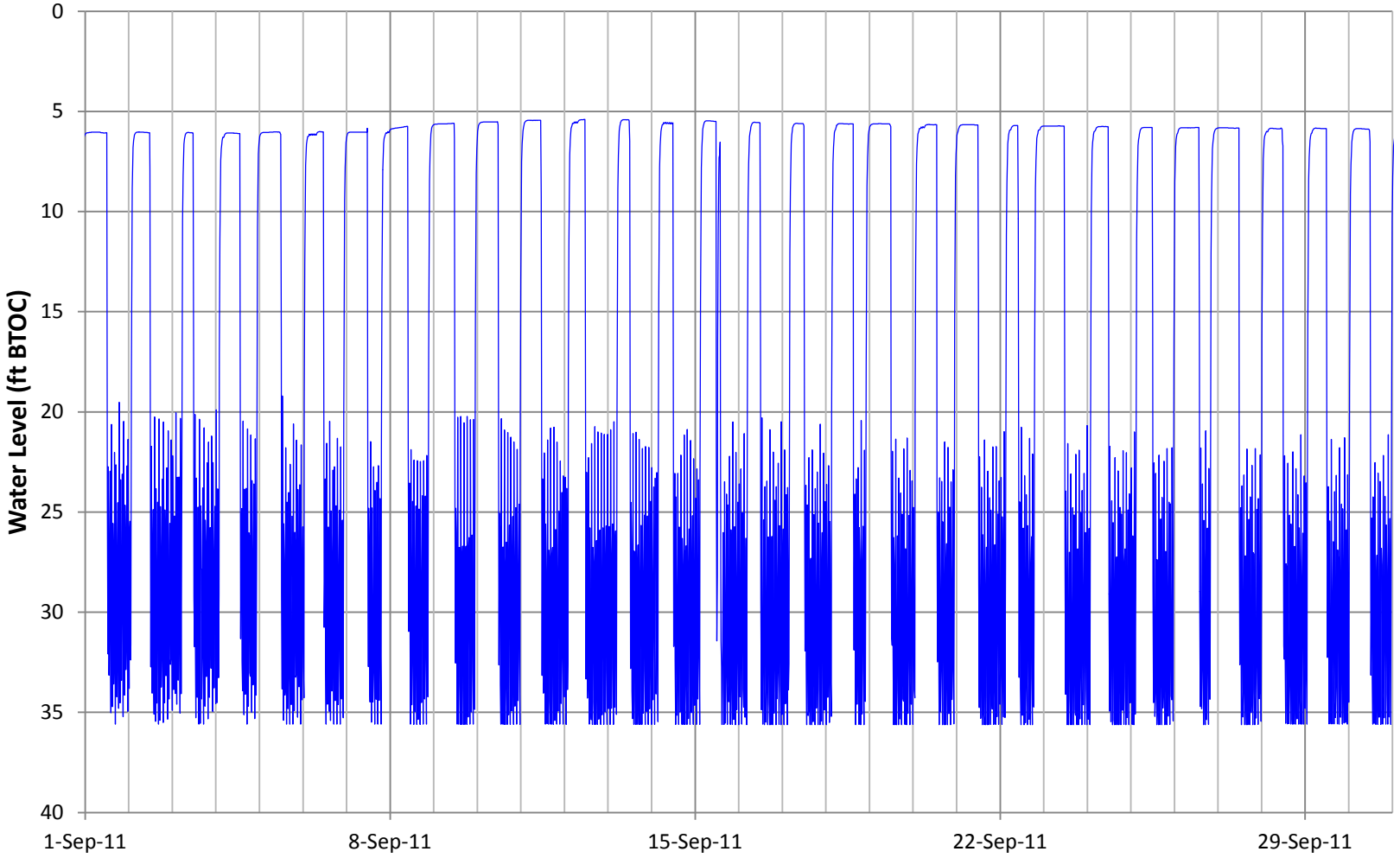


Figure C-4-2B

Water Level in RW0008. Month 3. October 2011

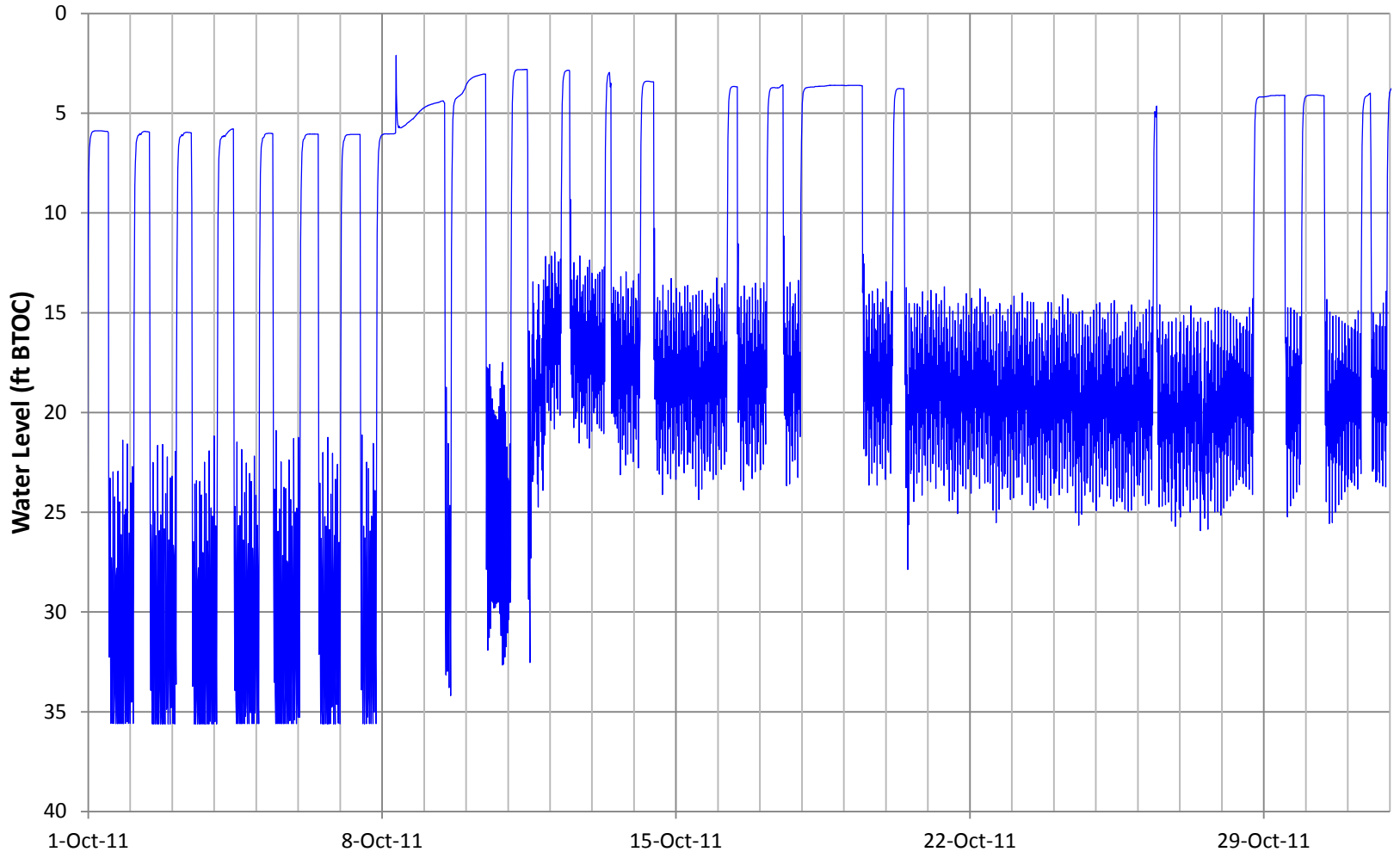


Figure C-4-2C

Water Level in RW0008. Month 4. November 2011

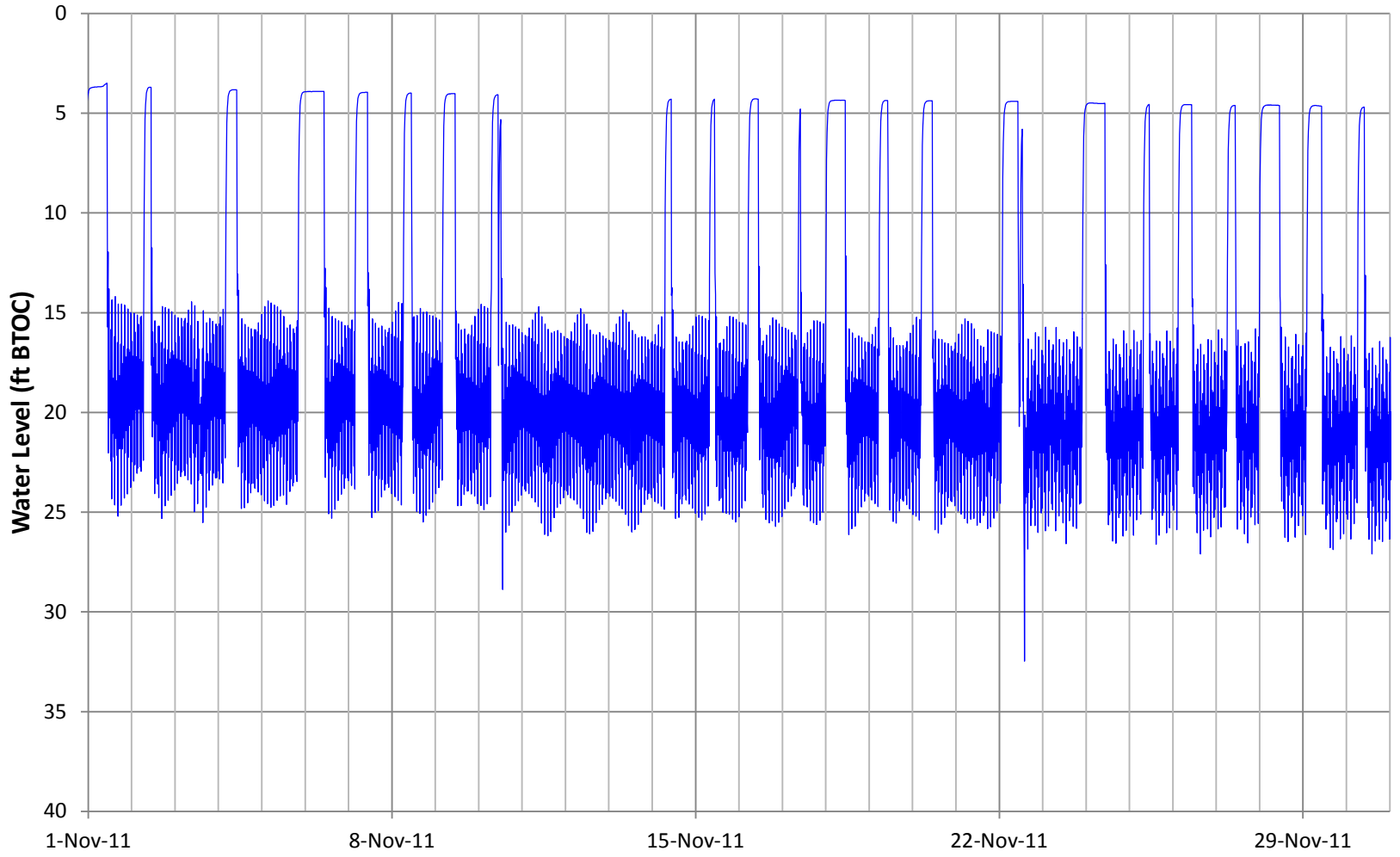


Figure C-4-2D

Water Level in RW0008. Month 5. December 2011

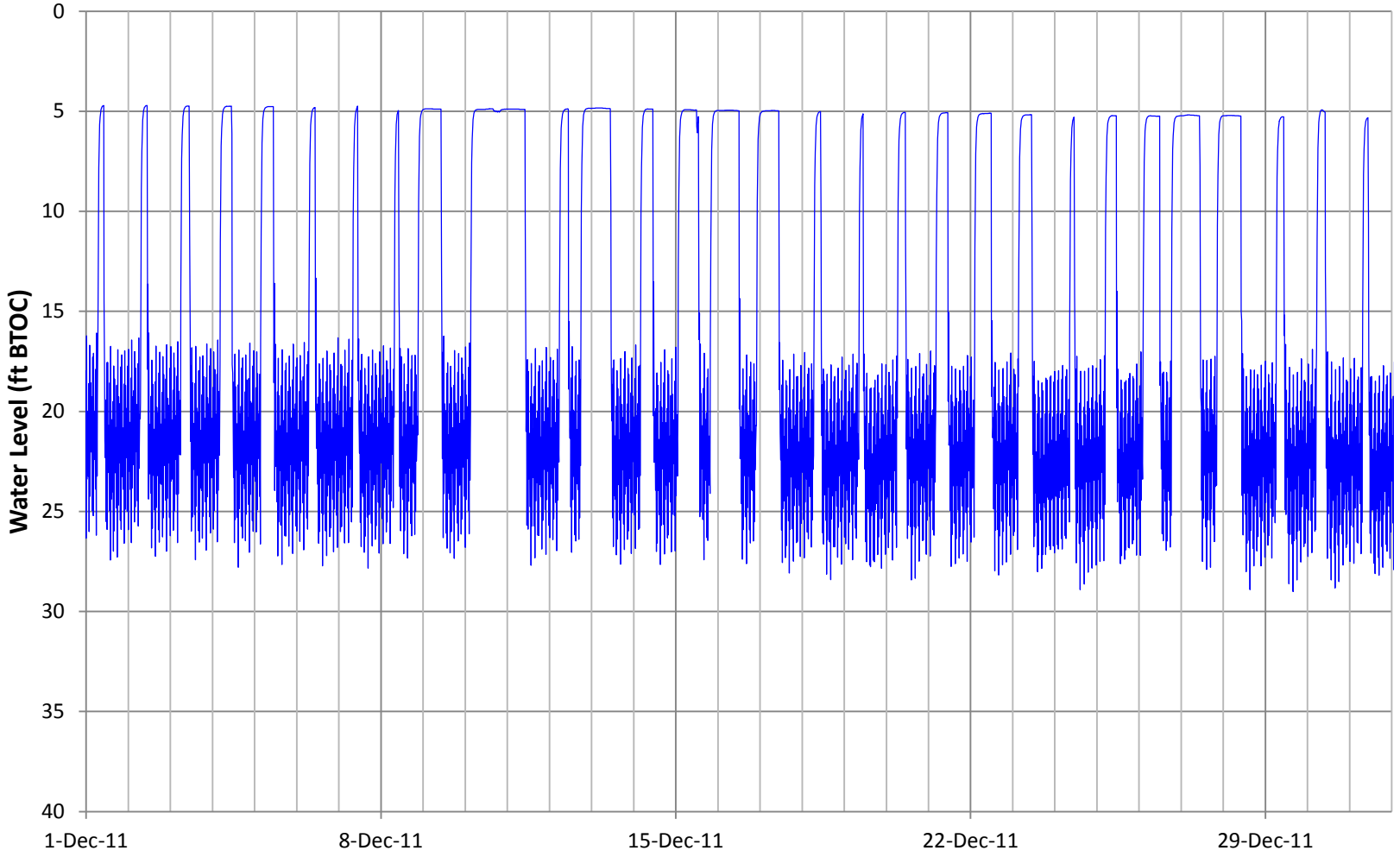


Figure C-4-2E

Water Level in RW0008. Month 6. January 2012

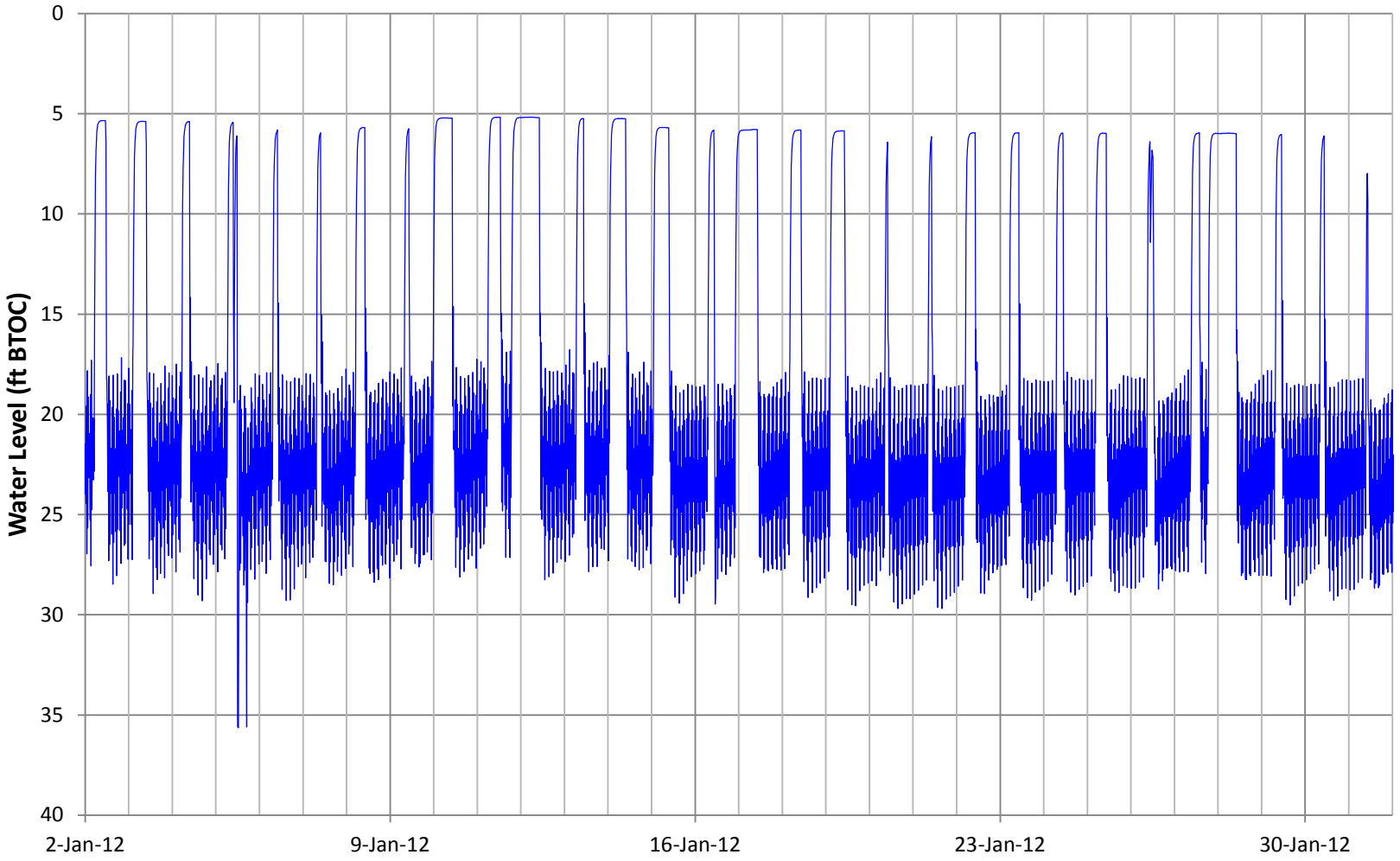


Figure C-4-2F

Water Level in RW0008. Month 7. February 2012

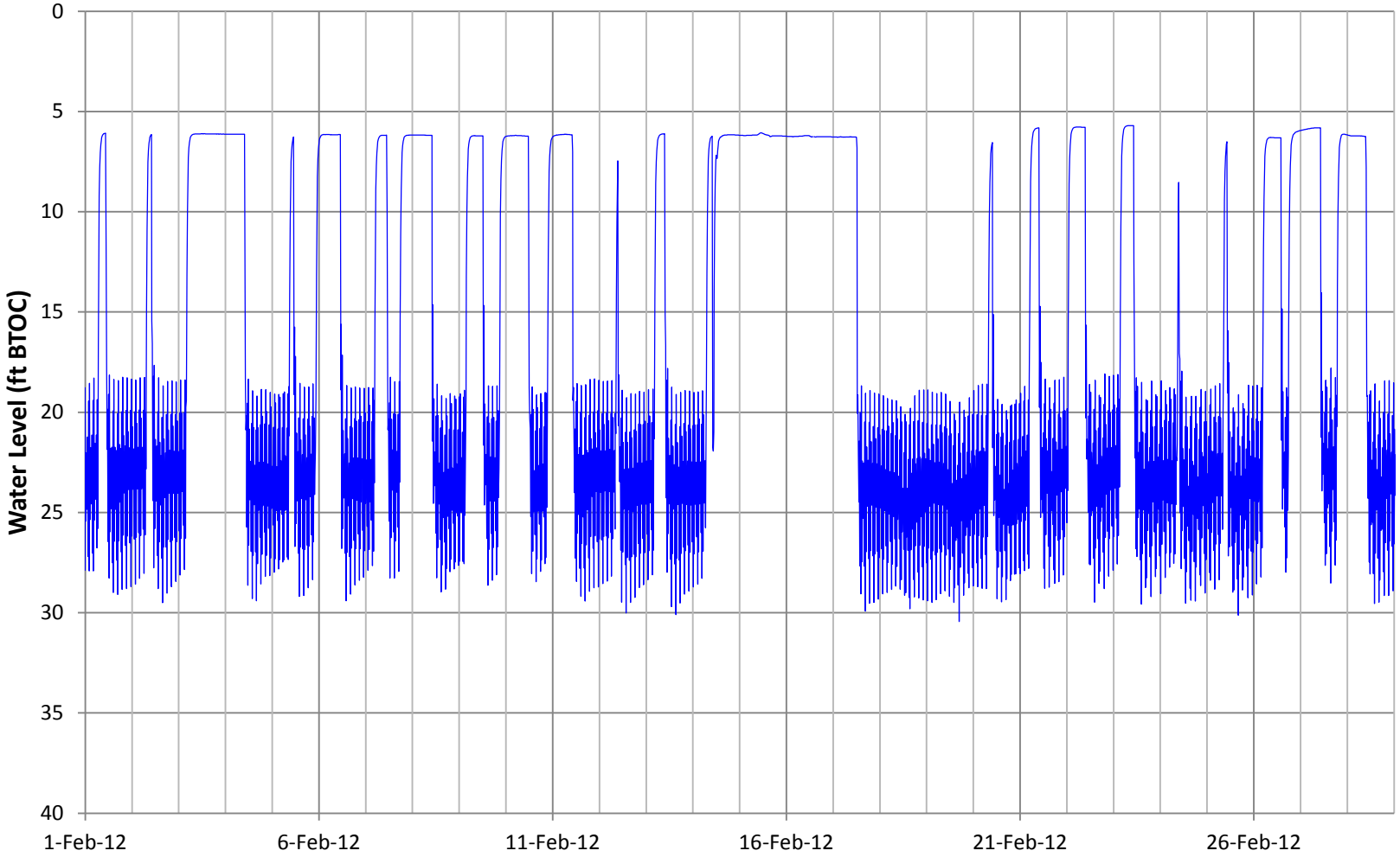


Figure C-4-2G

Water Level in RW0008. Month 8. March 2012

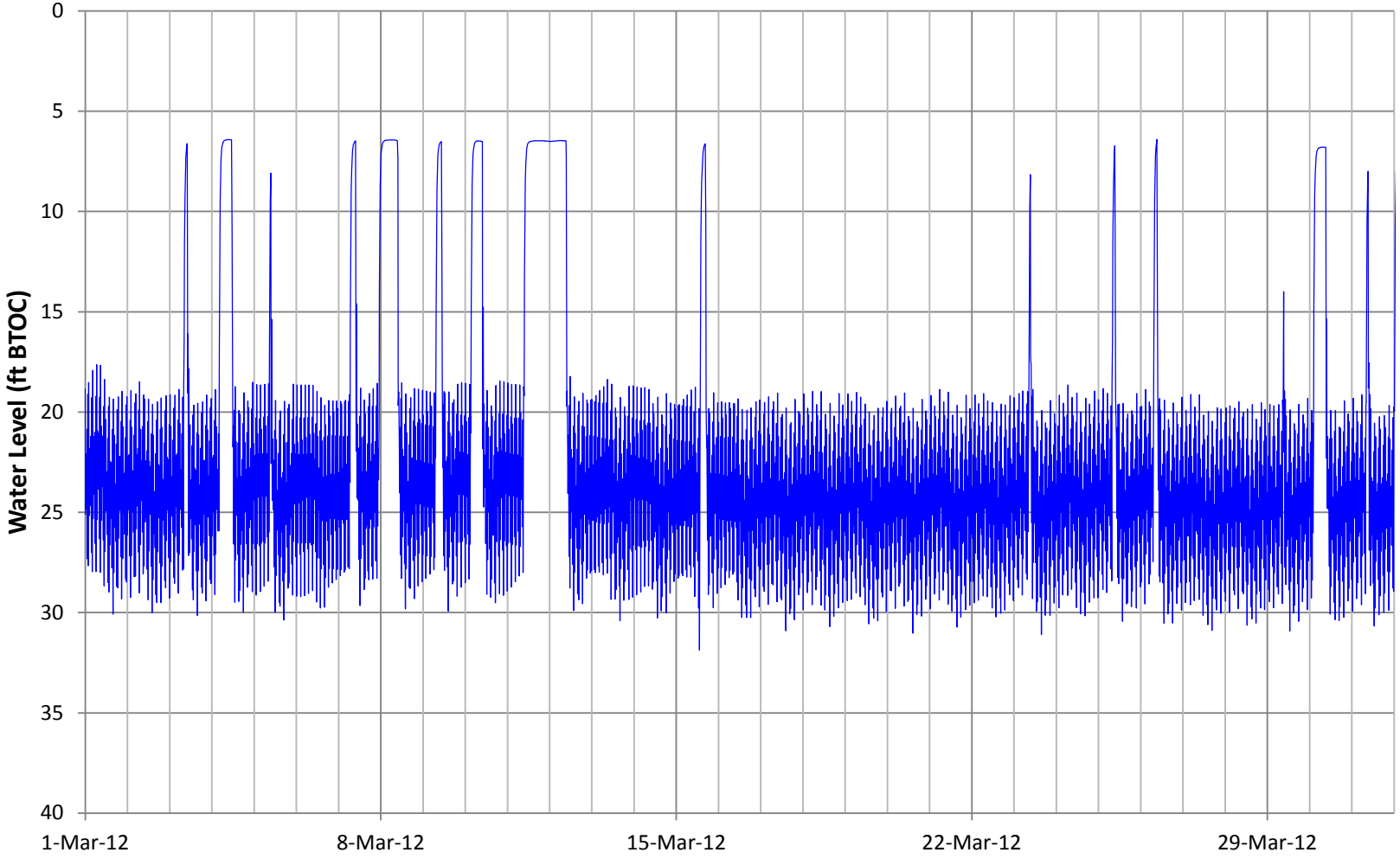


Figure C-4-2H

Water Level in RW0008. Month 9. April 2012

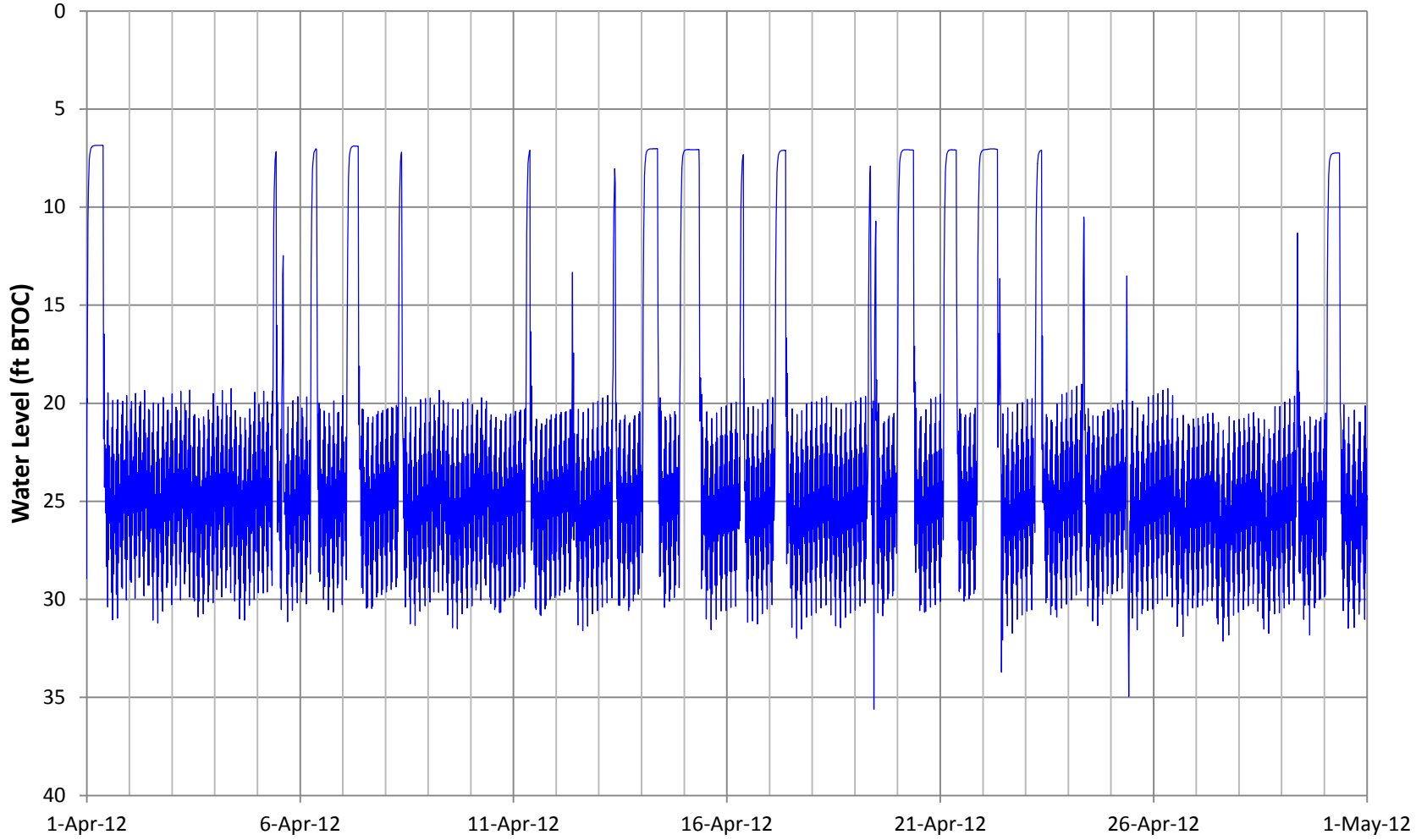


Figure C-4-2I

Water Level in RW0008. Month 10. May 2012

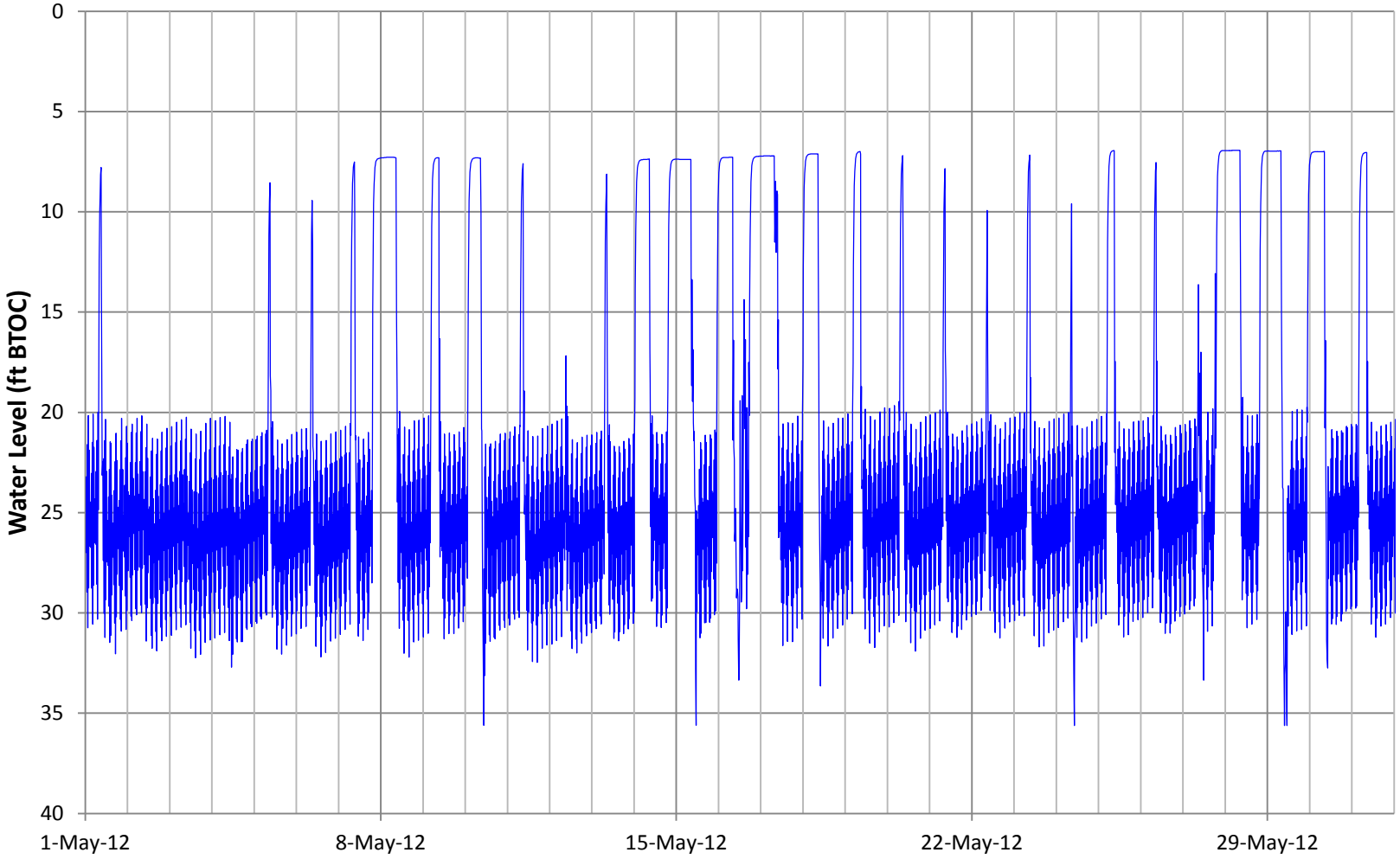


Figure C-4-2J

Water Level in RW0008. Month 11. June 2012

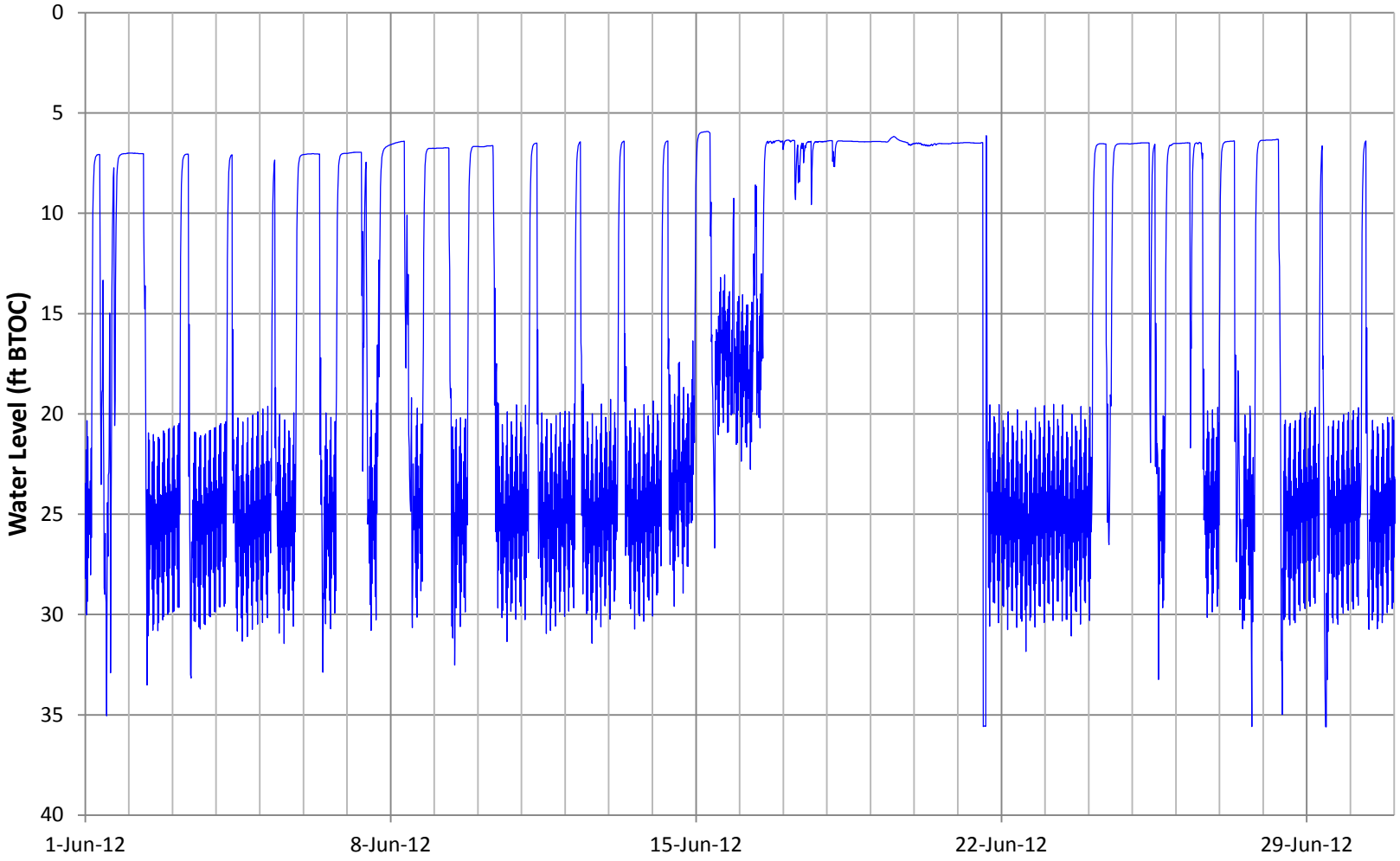


Figure C-4-2K

Water Level in RW0008. Month 12. July 2012

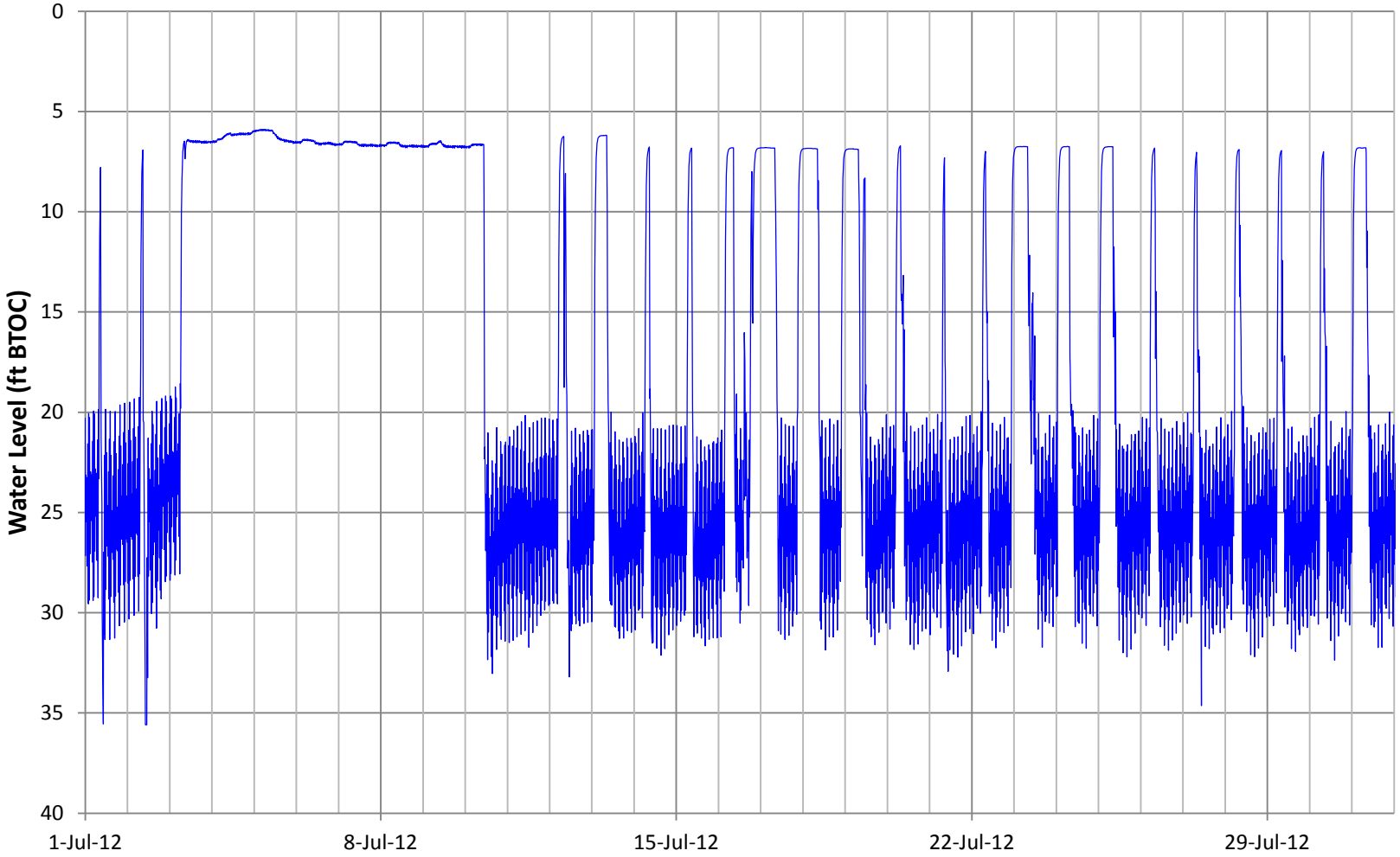


Figure C-4-2L

Water Level in RW0008. Month 13. August 2012

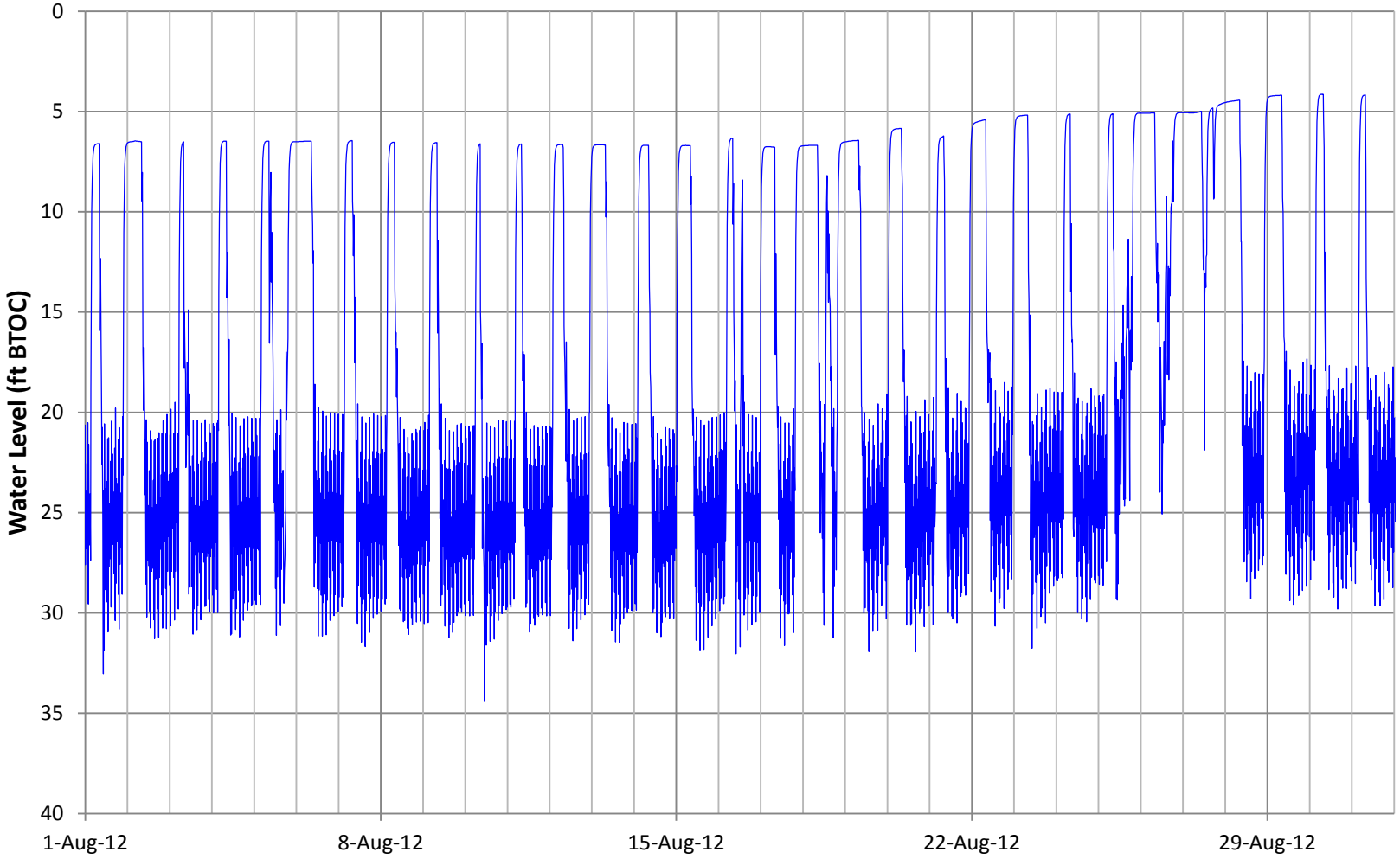


Figure C-4-2M

Water Level in RW0008. Month 14. September 2012

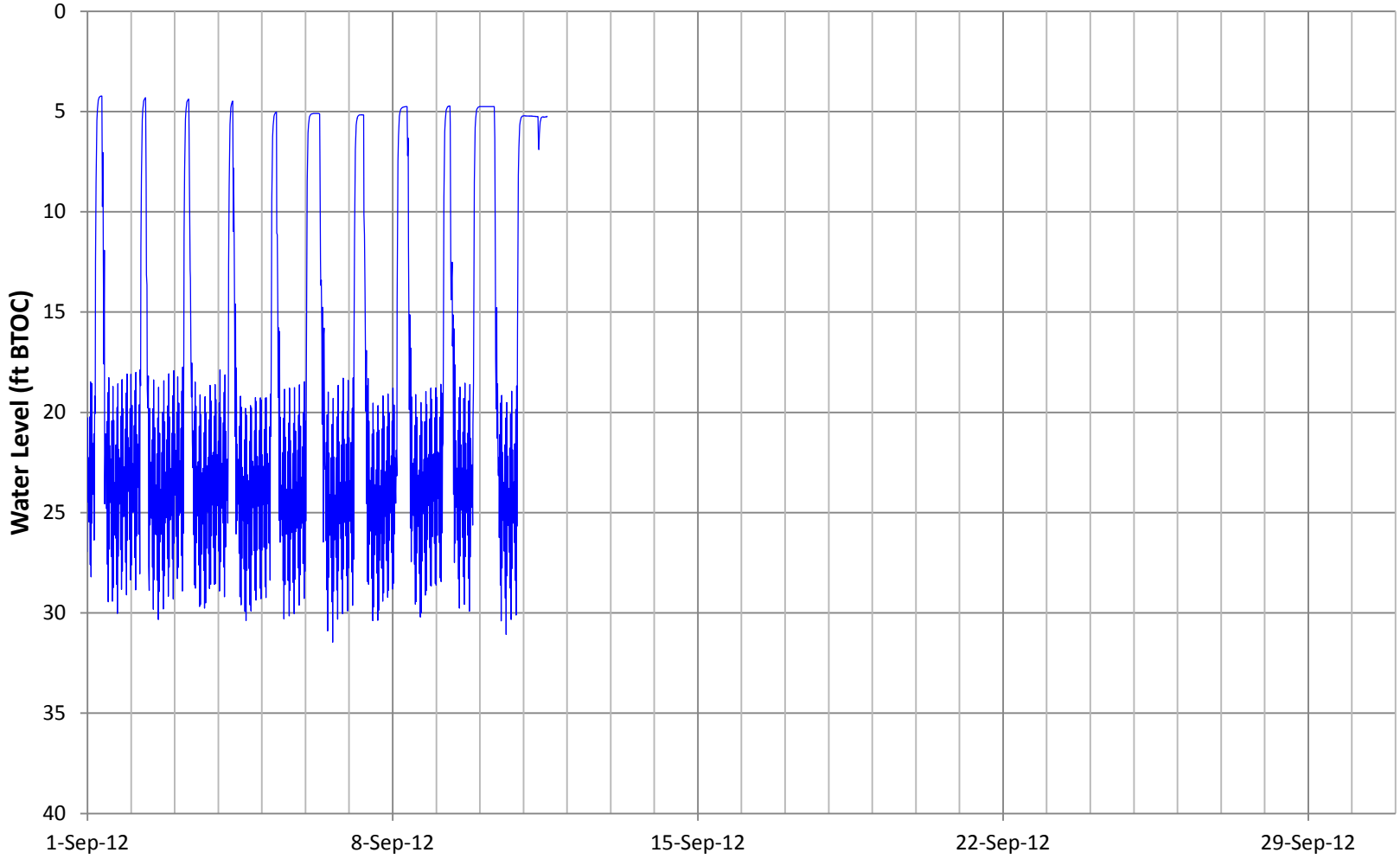


Figure C-4-3A

Water Level in IW0002D. Month 1. August 2011

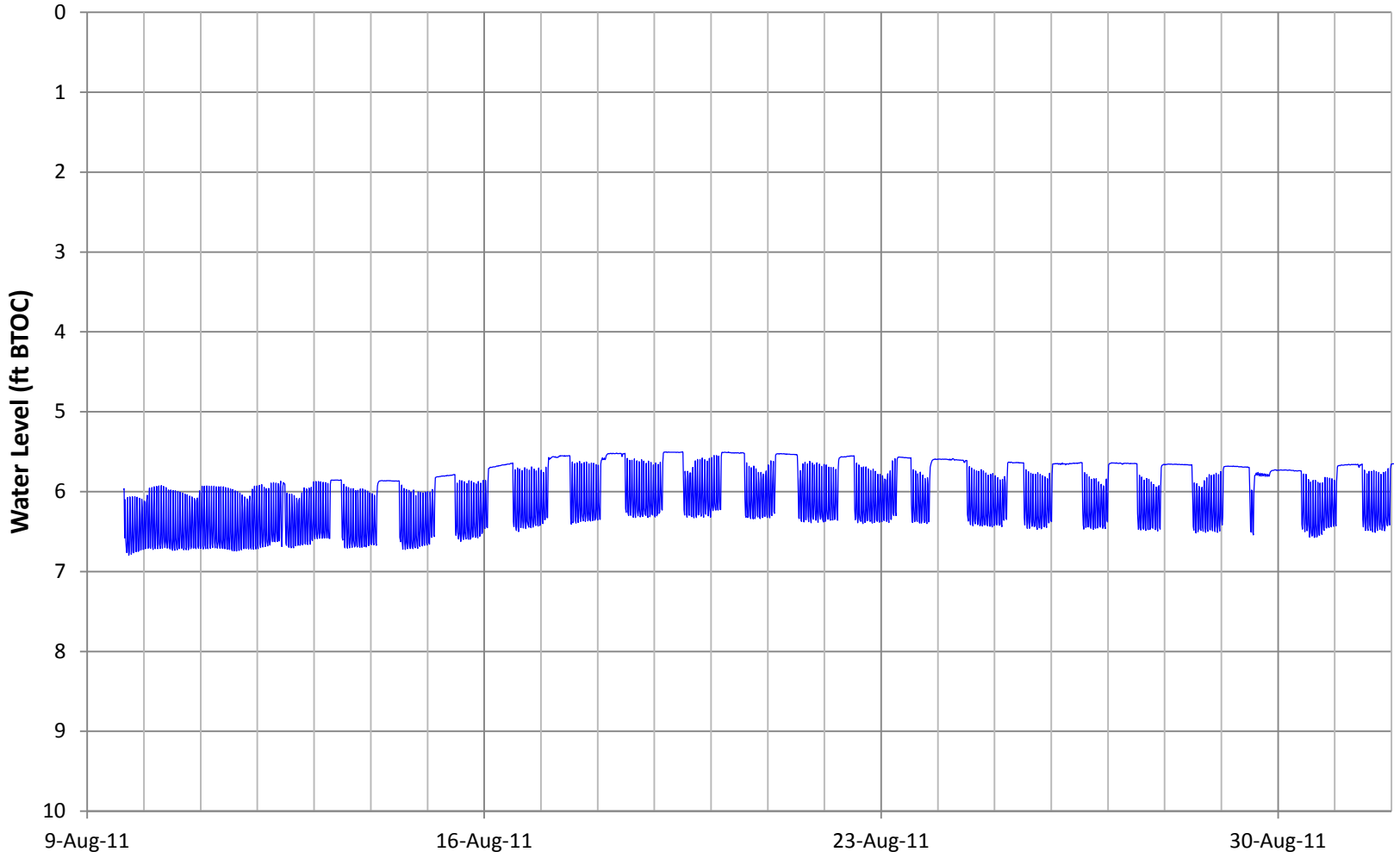


Figure C-4-3B

Water Level in IW0002D. Month 2. September 2011

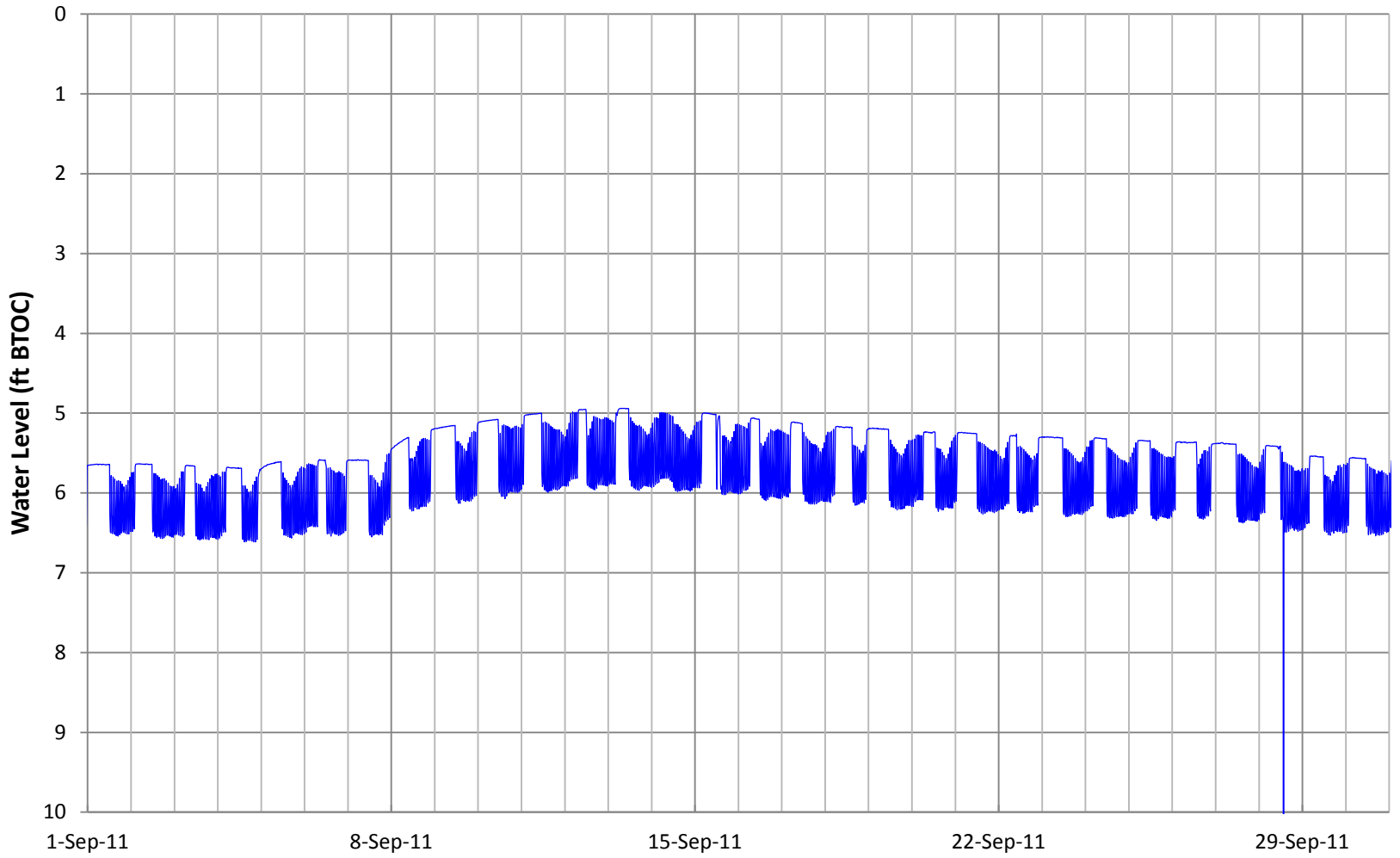


Figure C-4-3C

Water Level in IW0002D. Month 3. October 2011

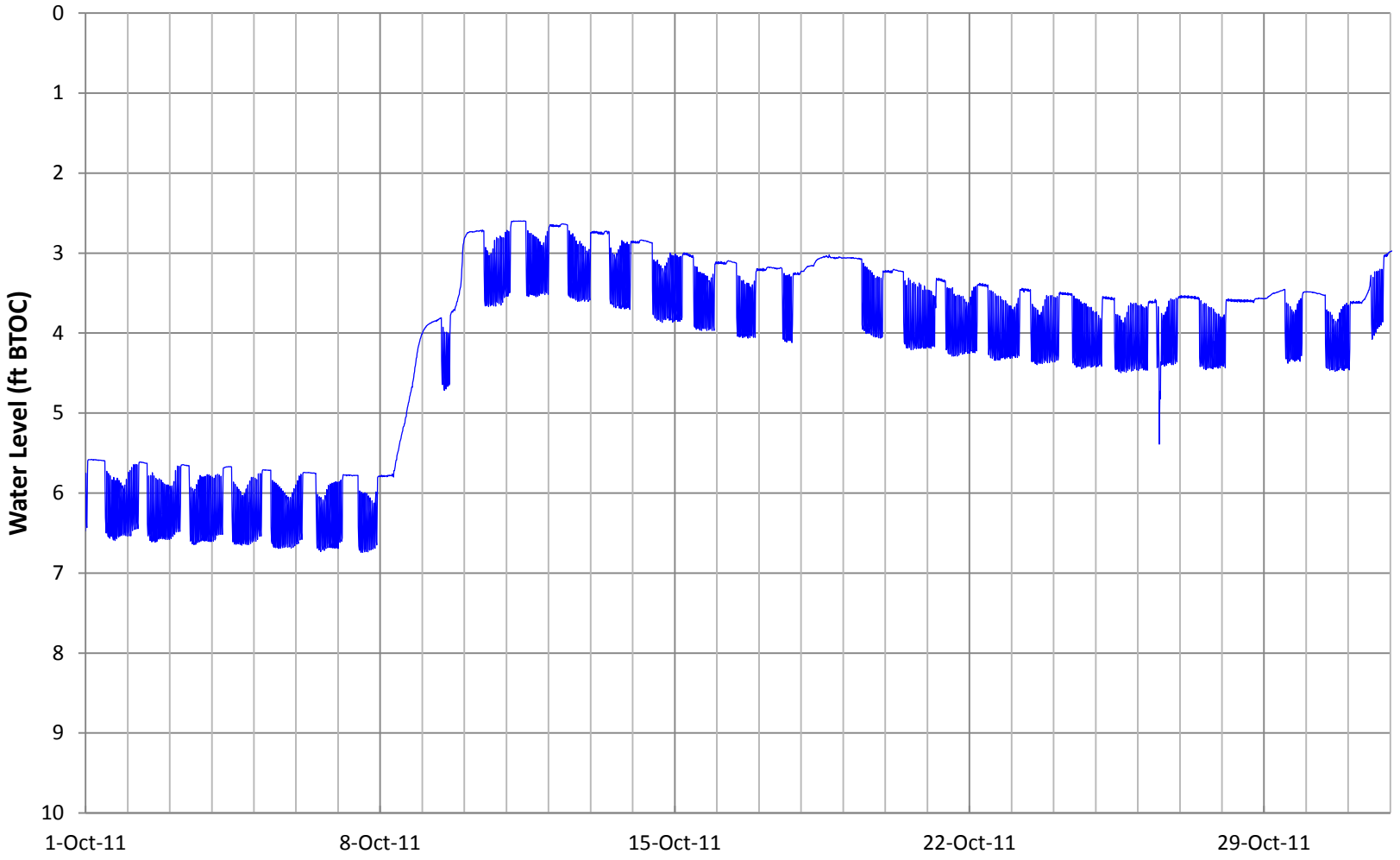


Figure C-4-3D

Water Level in IW0002D. Month 4. November 2011

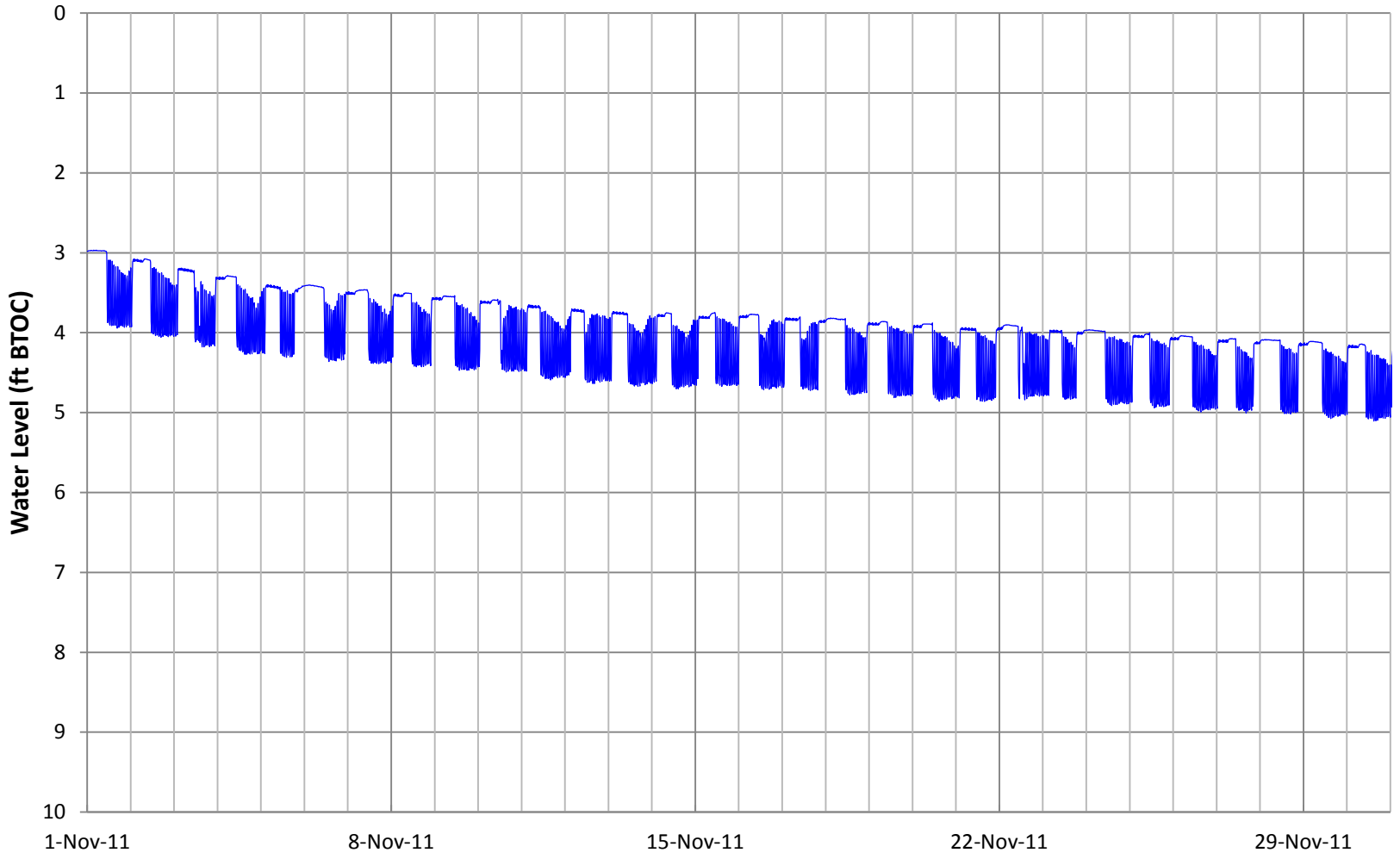


Figure C-4-3E

Water Level in IW0002D. Month 5. December 2011

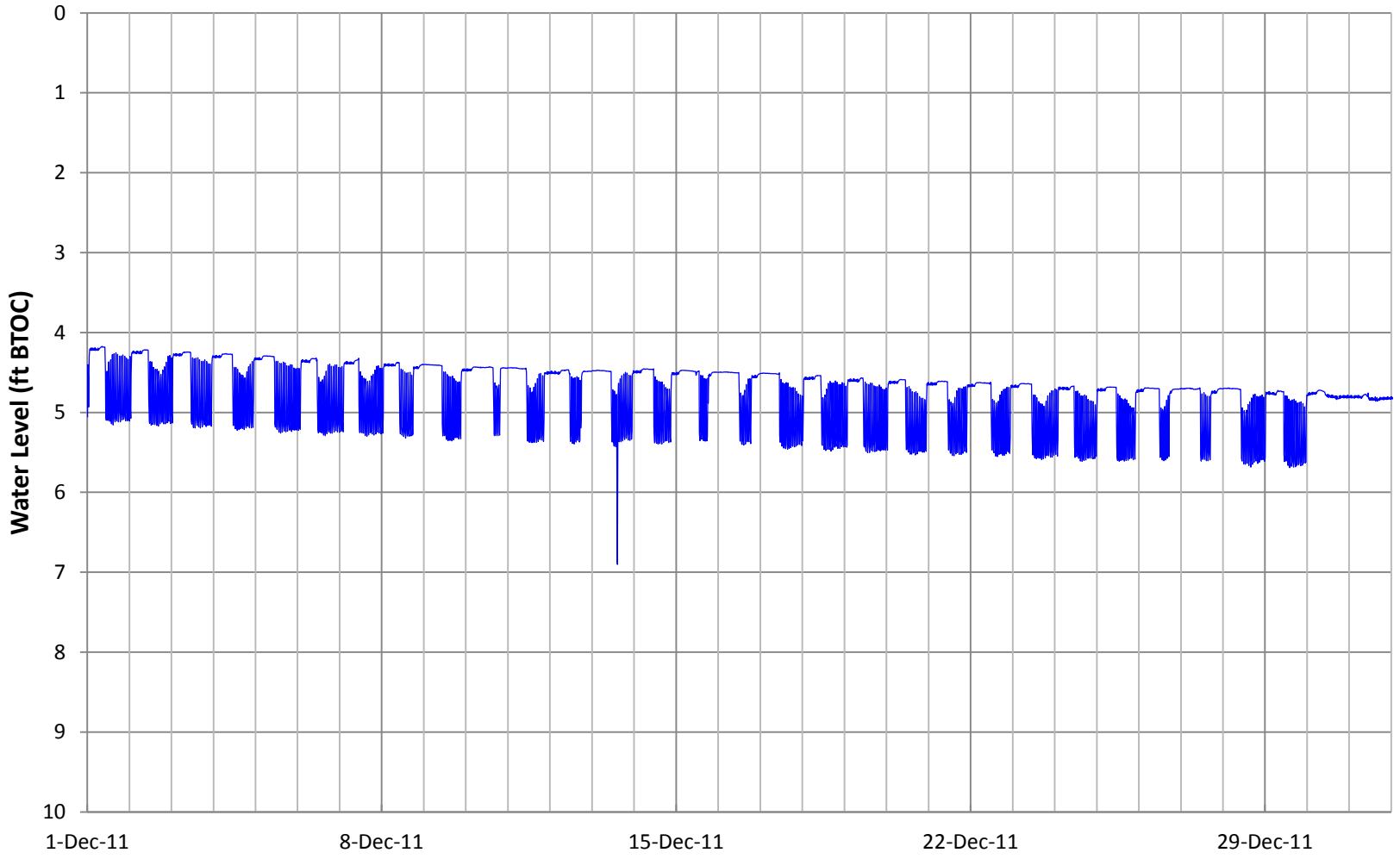


Figure C-4-3F

Water Level in IW0002D. Month 6. January 2012

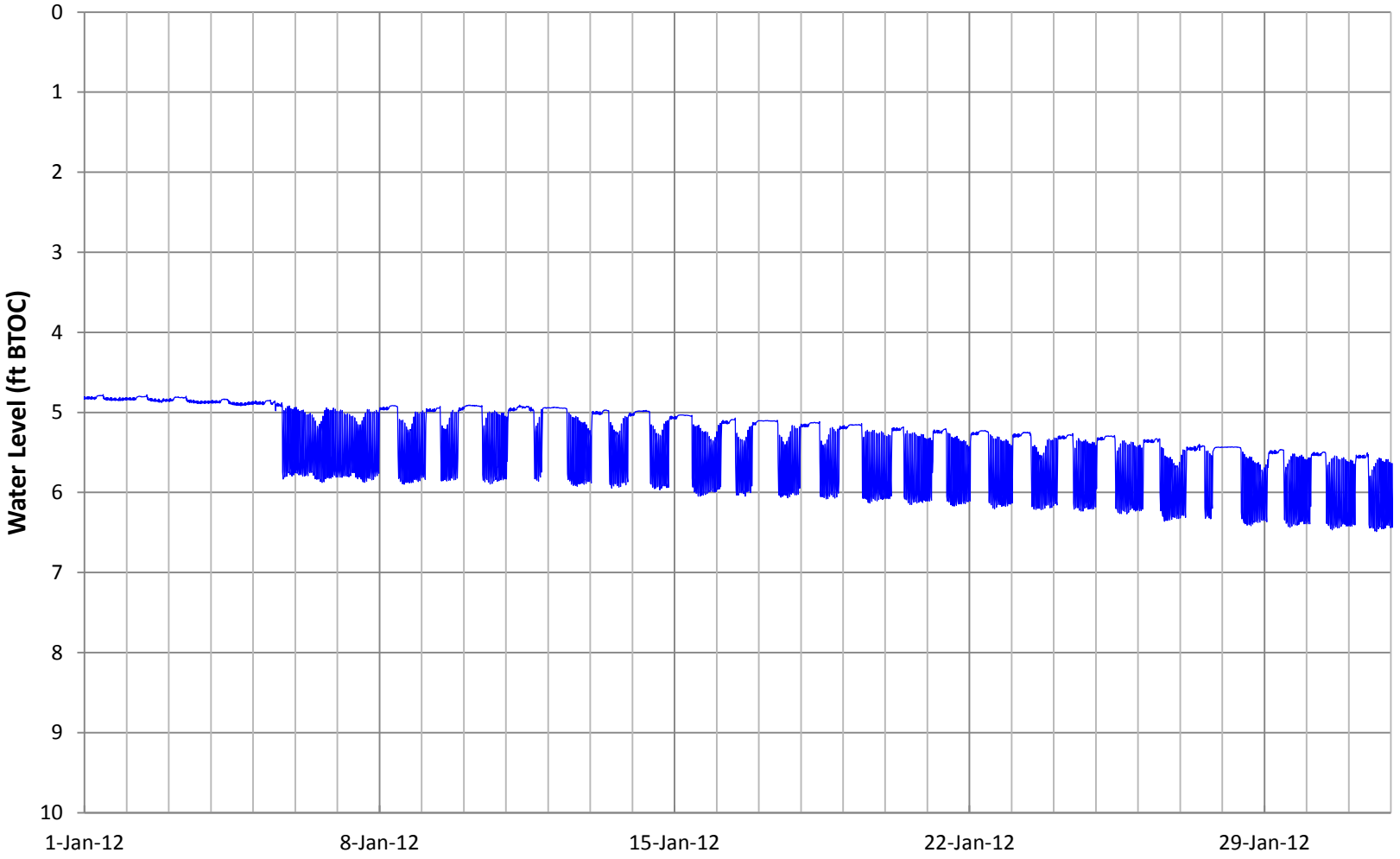


Figure C-4-3G

Water Level in IW0002D. Month 7. February 2012

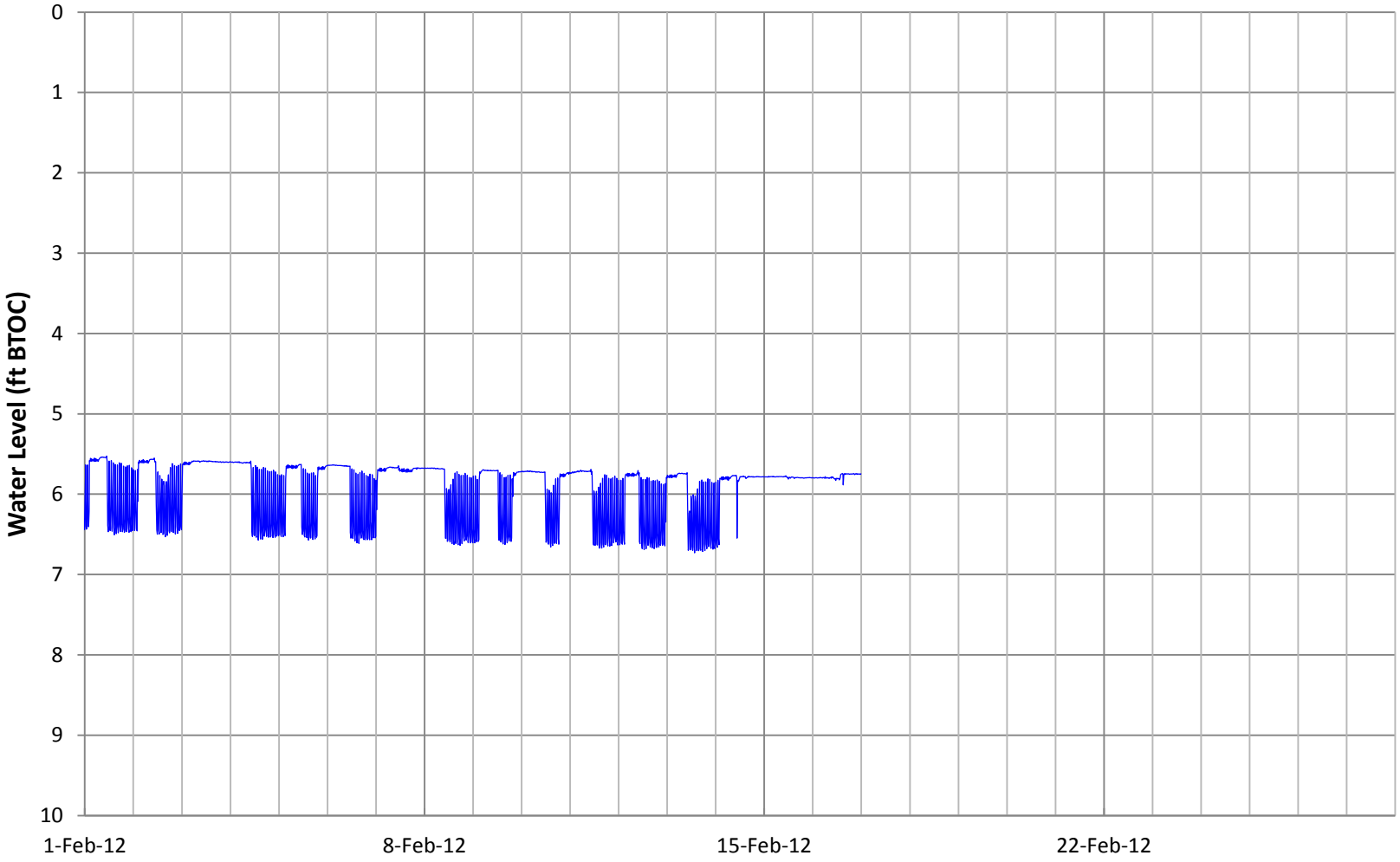


Figure C-4-4A

Water Level in IW0002D1. Month 1. August 2011

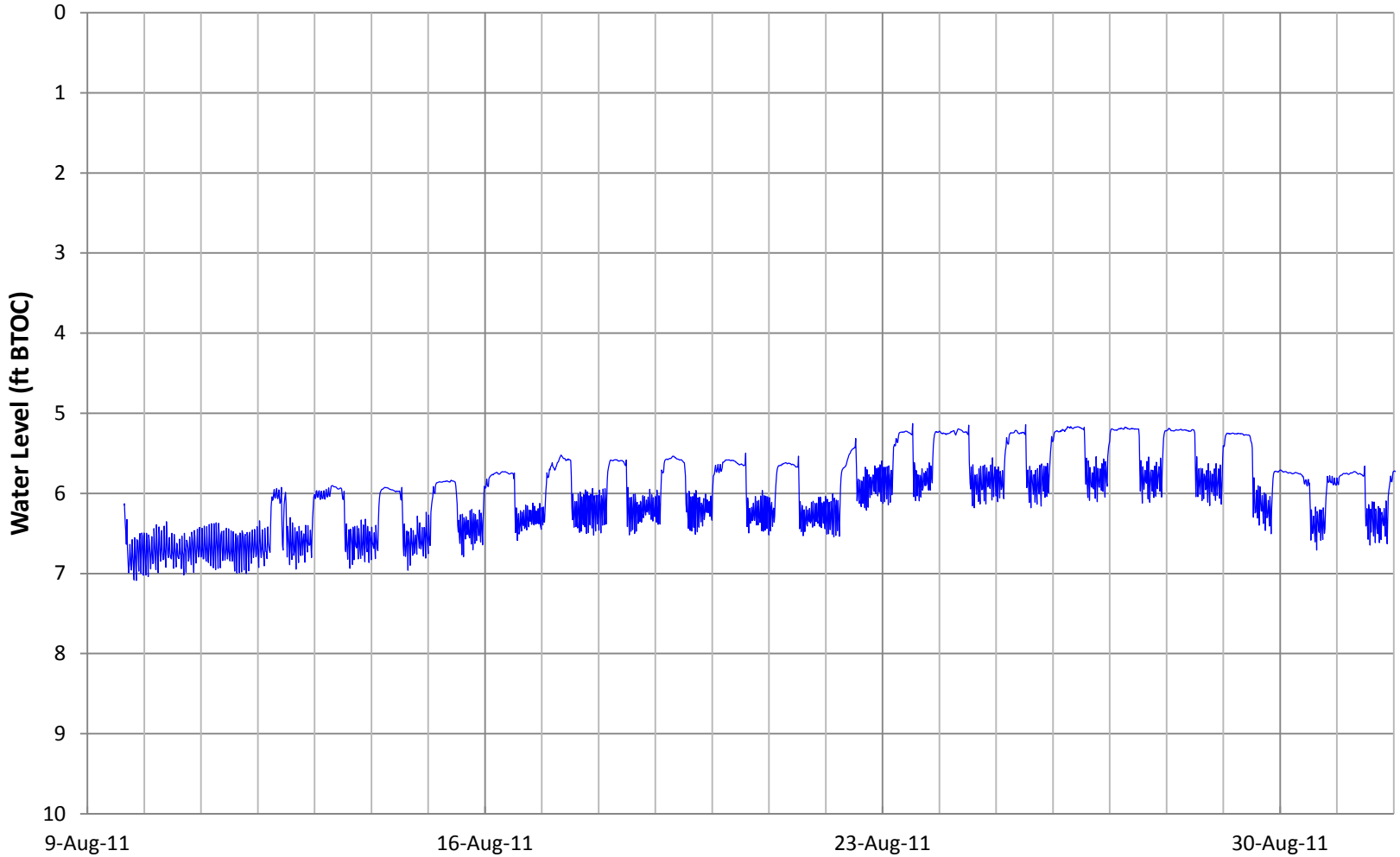


Figure C-4-4B

Water Level in IW0002D1. Month 2. September 2011

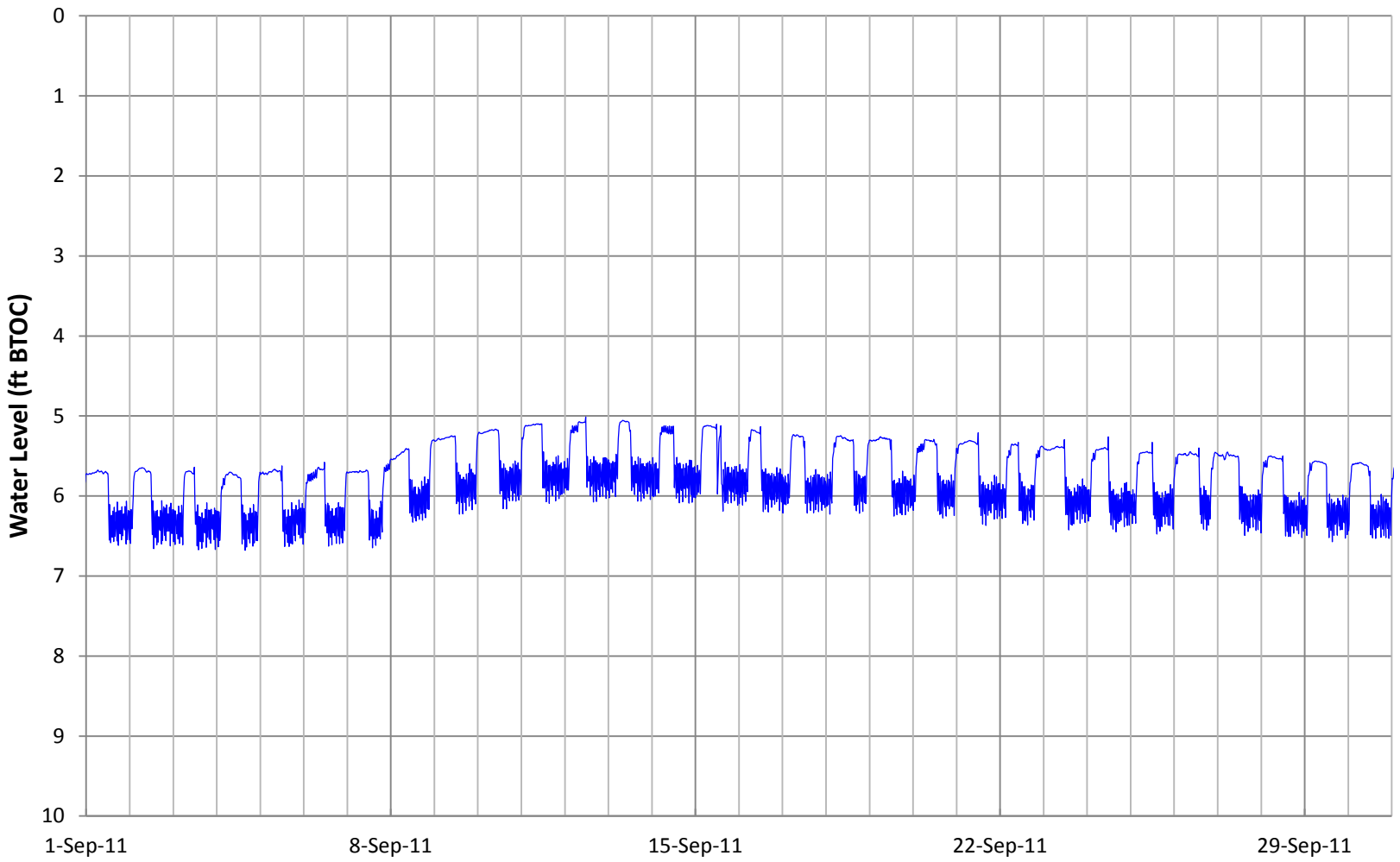


Figure C-4-4C

Water Level in IW0002D1. Month 3. October 2011

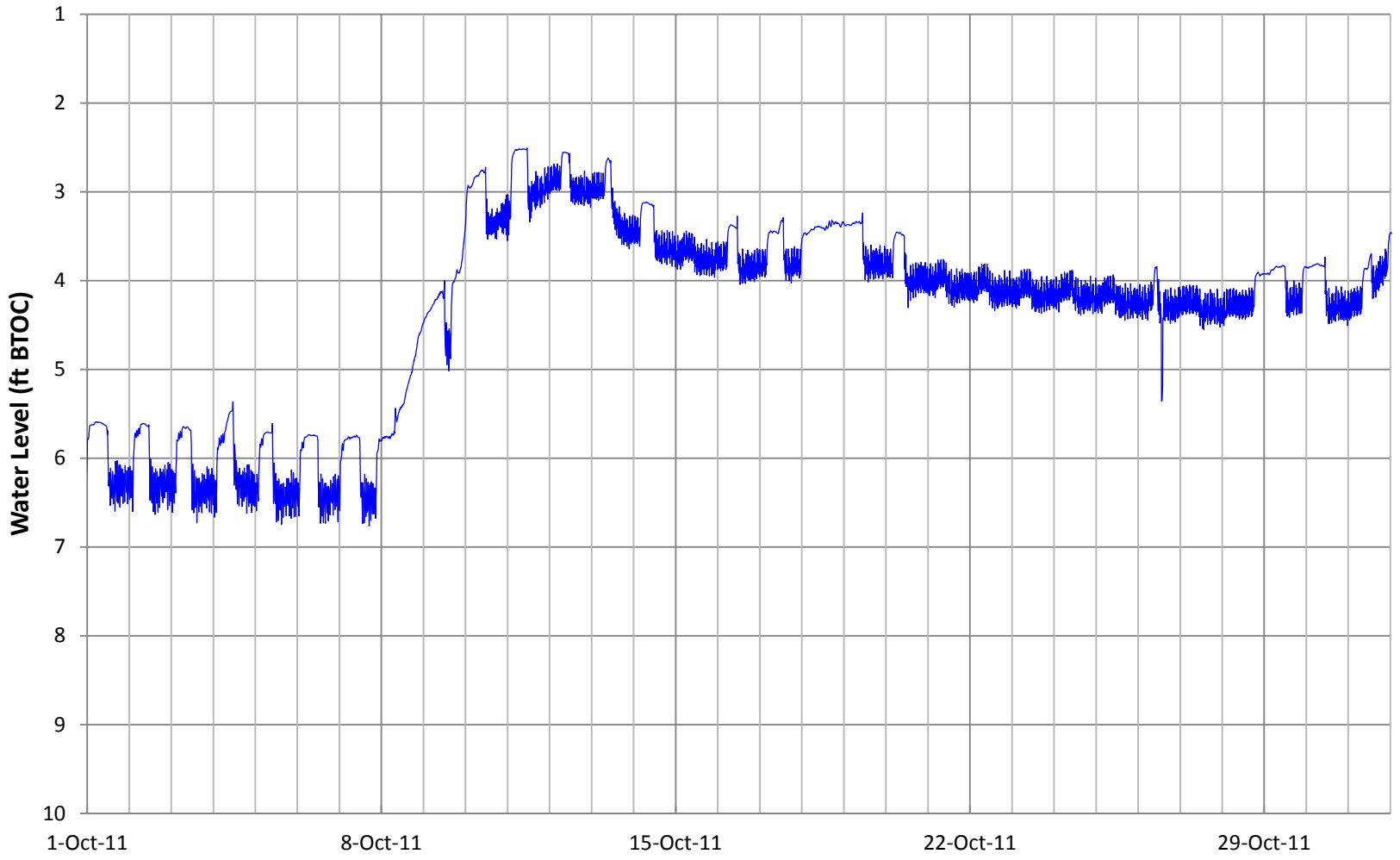


Figure C-4-4D

Water Level in IW0002D1. Month 4. November 2011

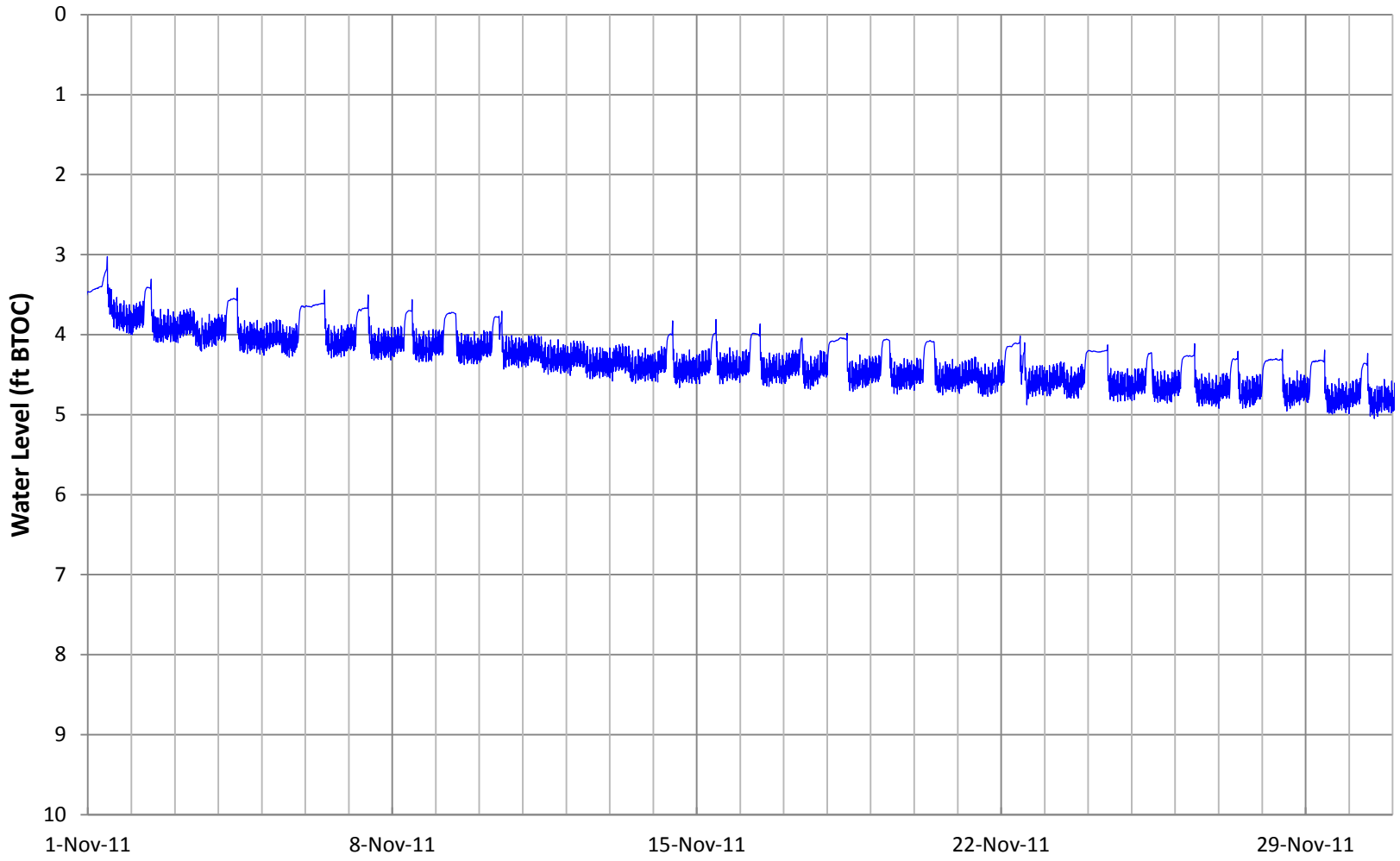


Figure C-4-4E

Water Level in IW0002D1. Month 5. December 2011

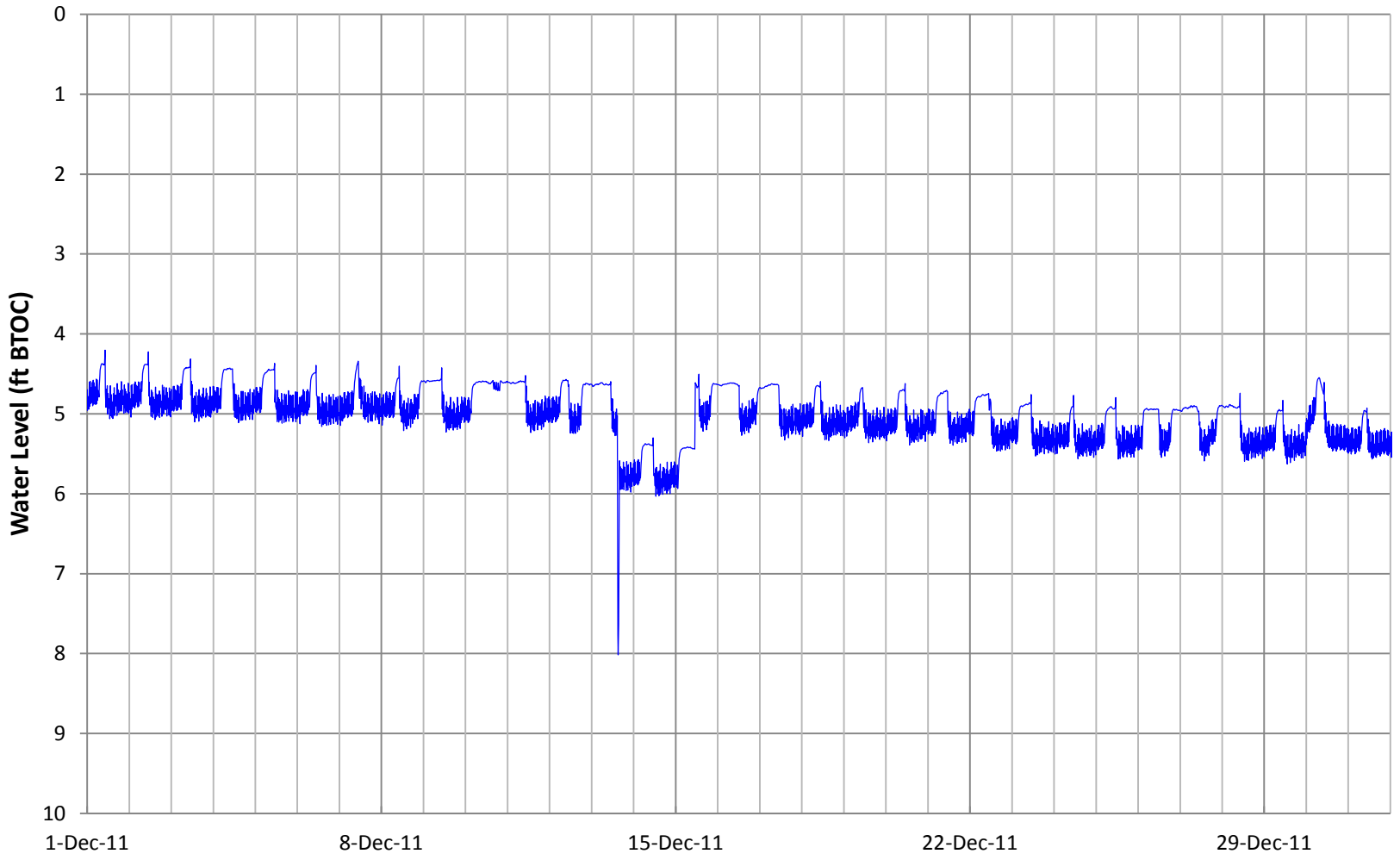


Figure C-4-4F

Water Level in IW0002D1. Month 6. January 2012

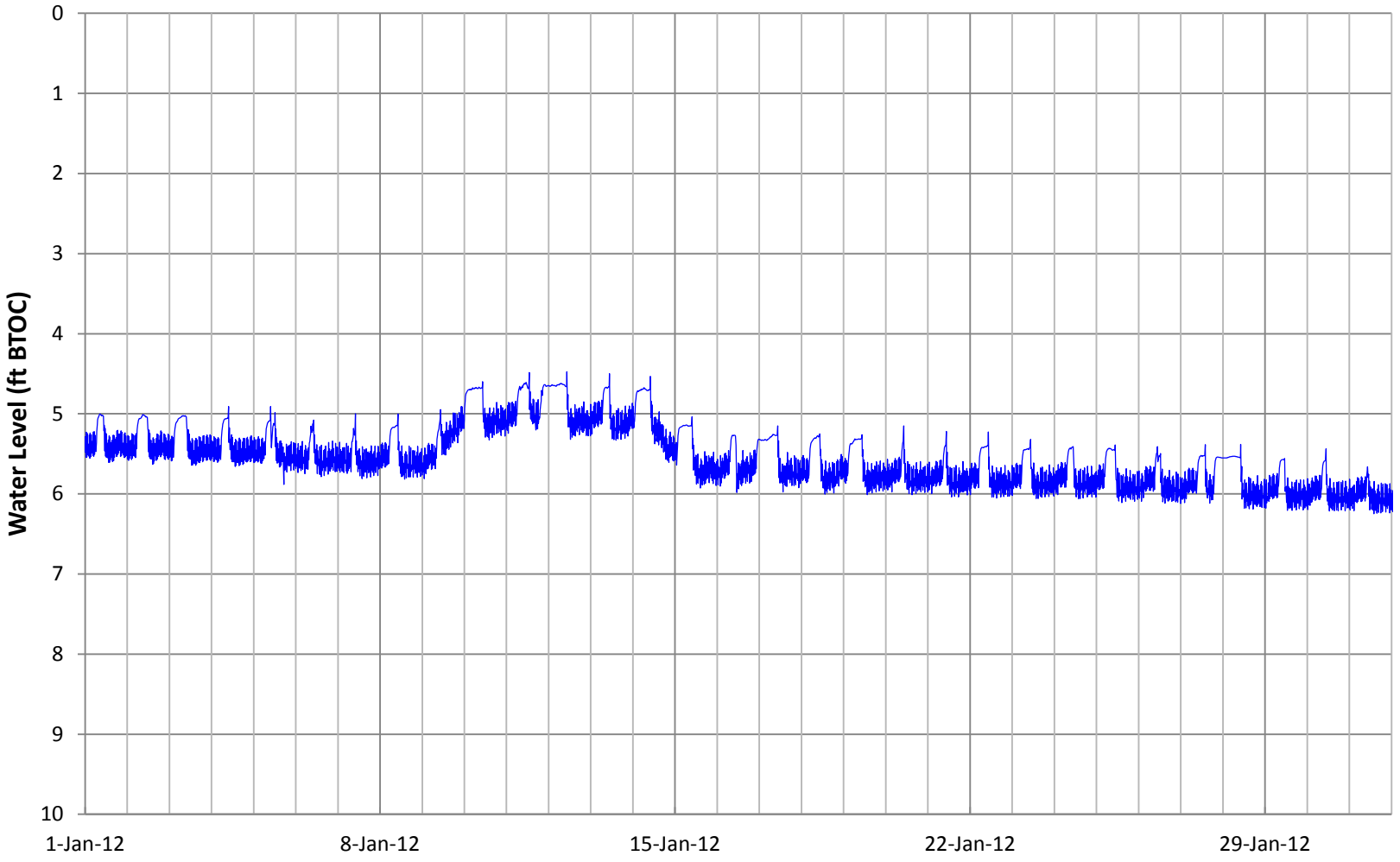


Figure C-4-4G

Water Level in IW0002D1. Month 7. February 2012

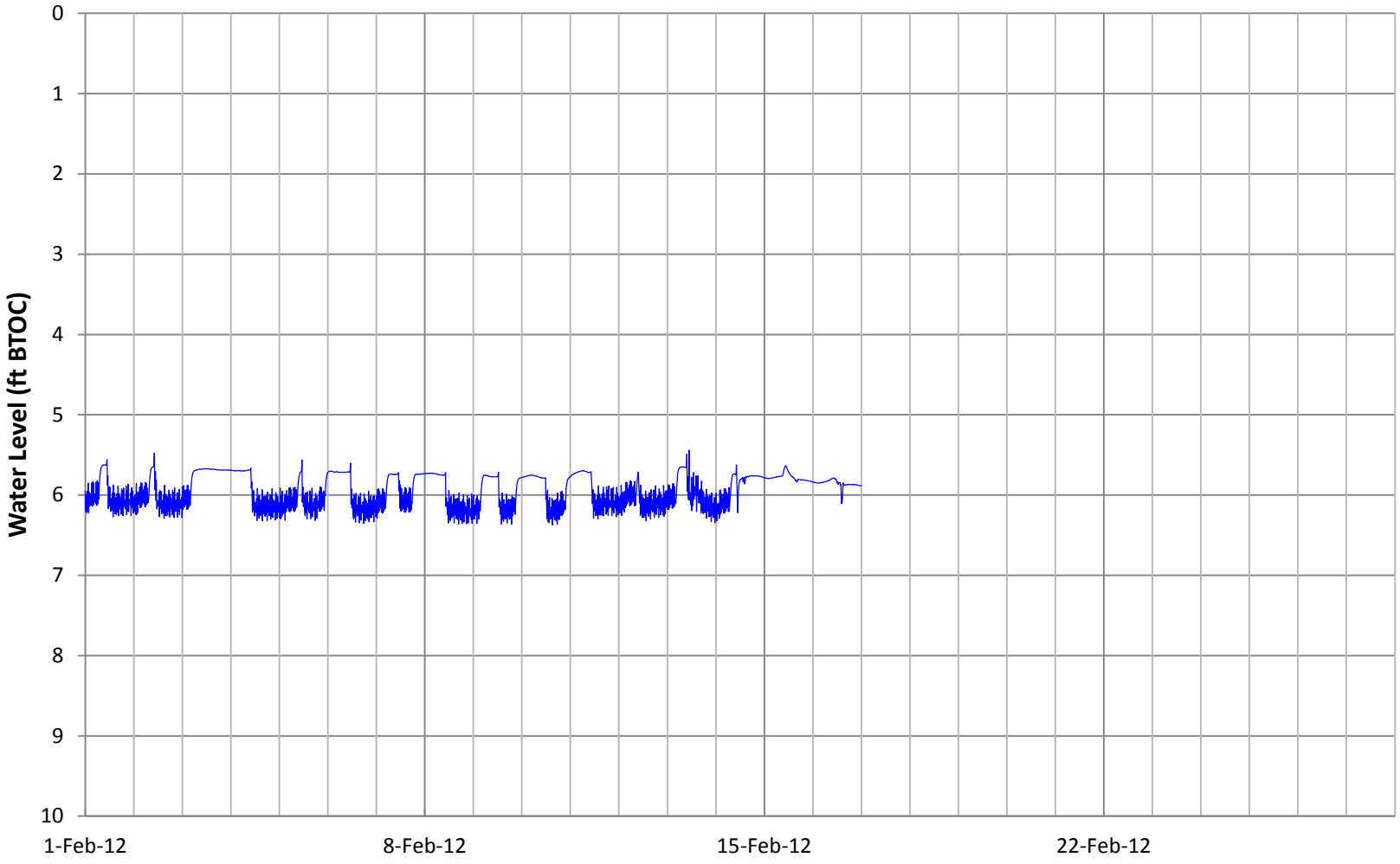


Figure C-4-5A

Water Level in IJ0013. Month 1. August 2011

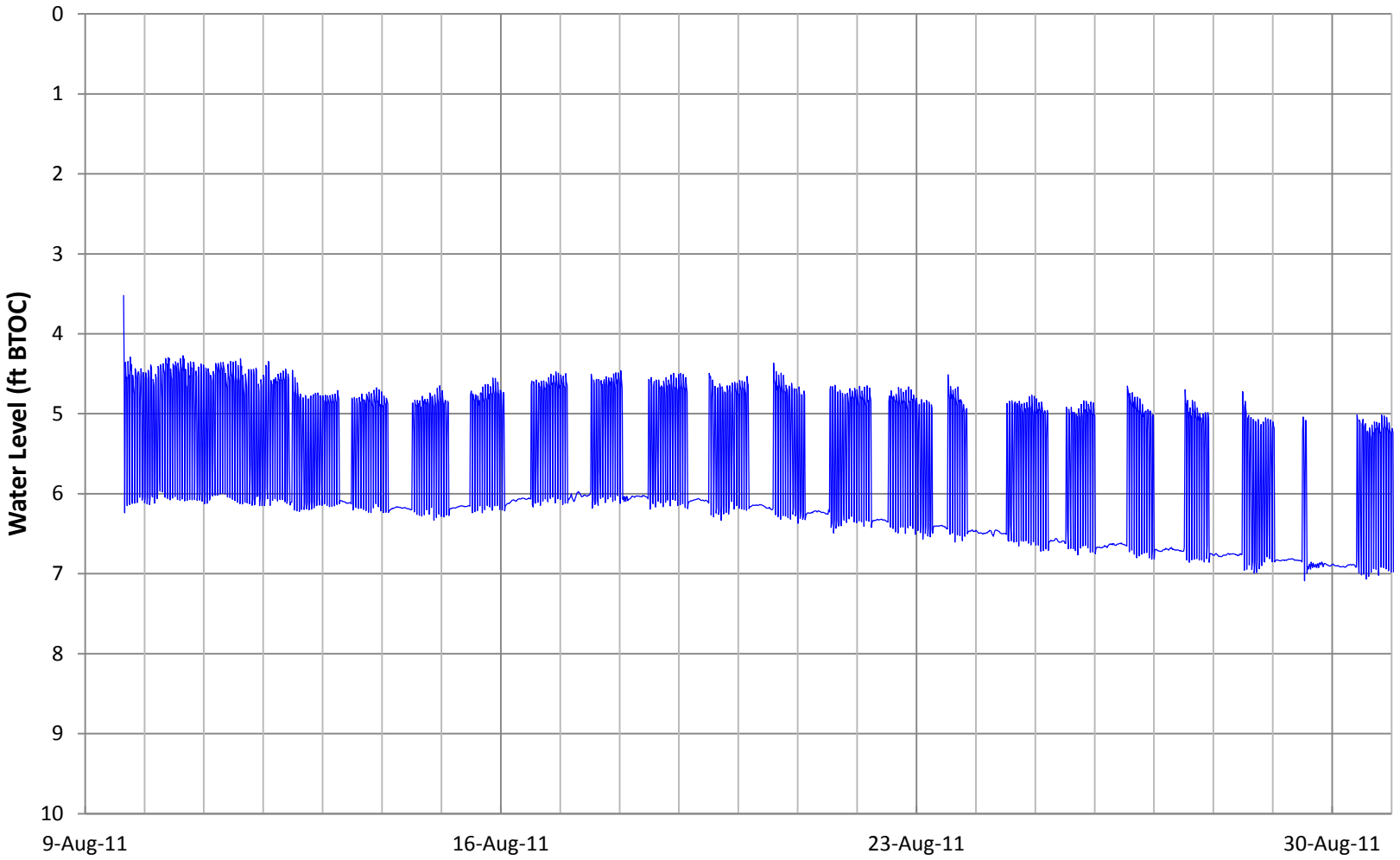


Figure C-4-5B

Water Level in IJ0013. Month 2. September 2011

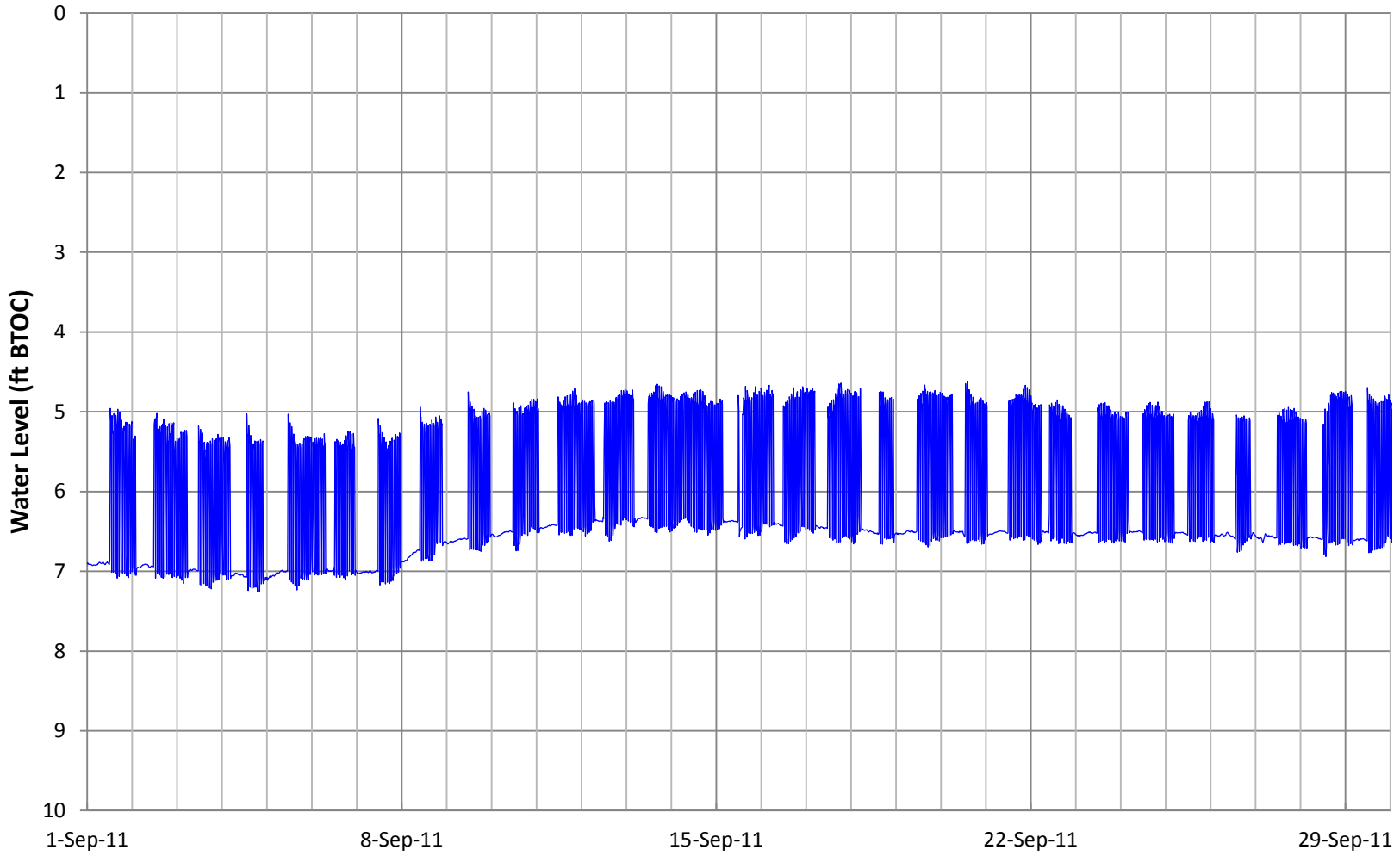


Figure C-4-5C

Water Level in IJ0013. Month 3. October 2011

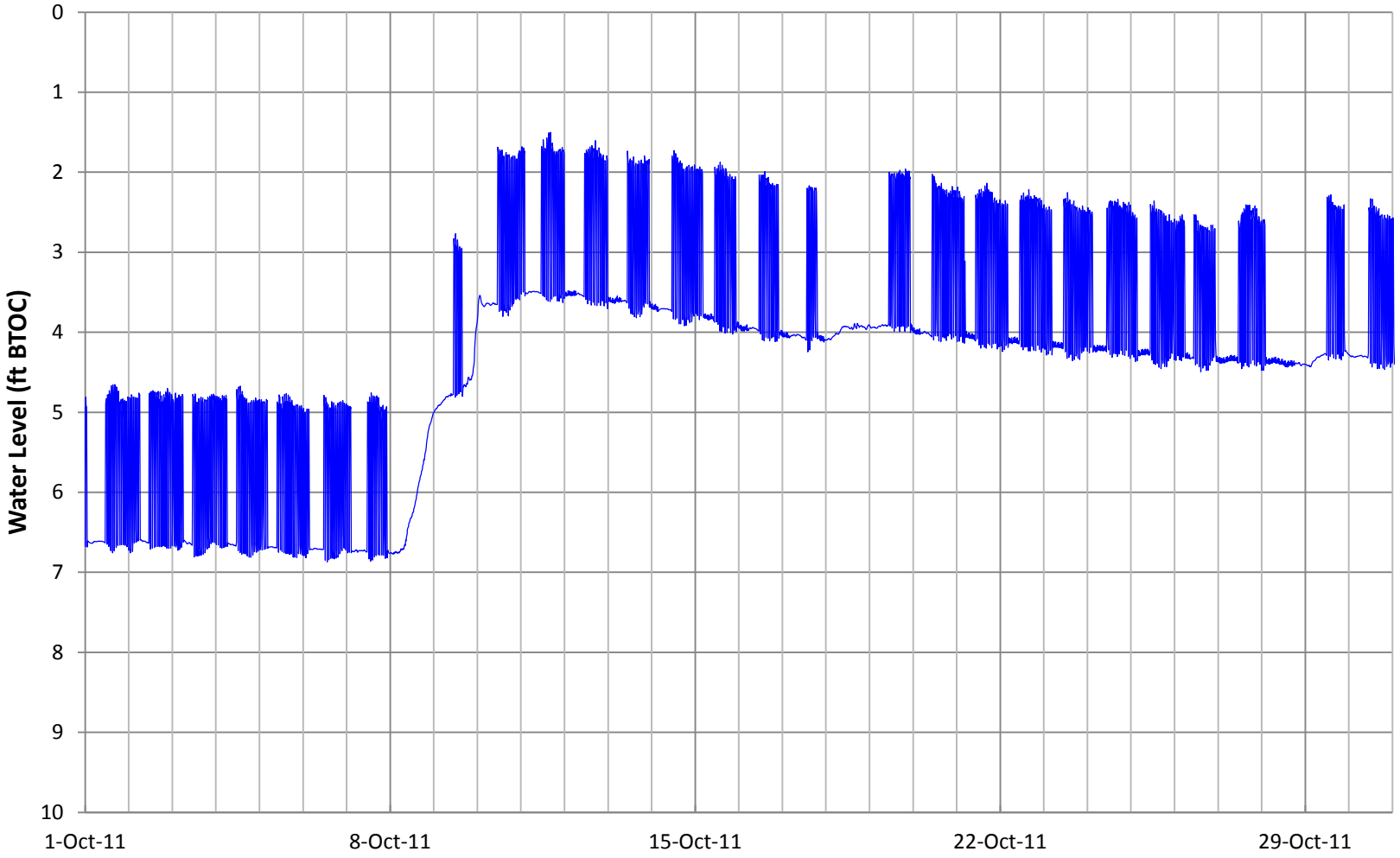


Figure C-4-5D

Water Level in IJ0013. Month 4. November 2011

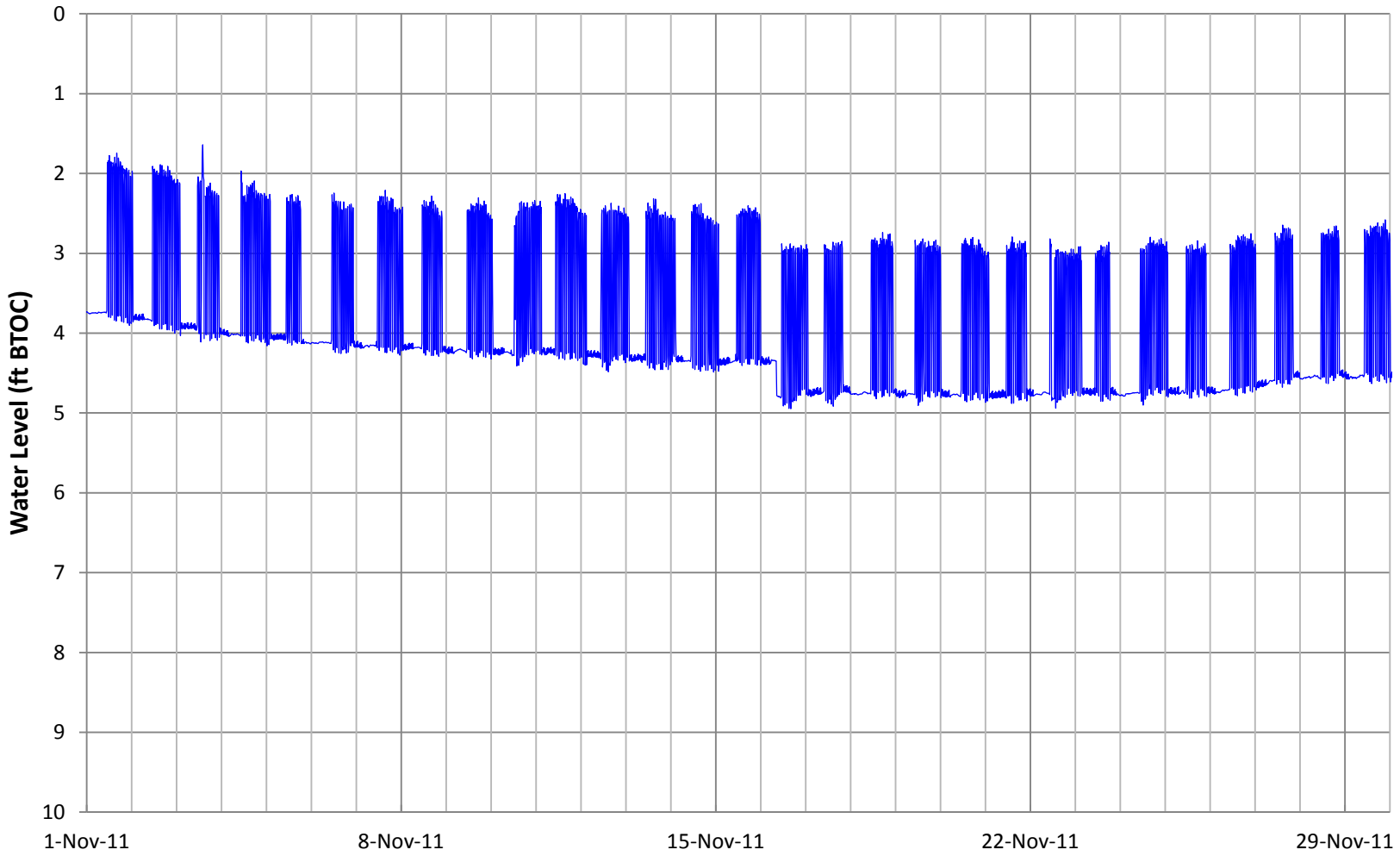


Figure C-4-5E

Water Level in IJ0013. Month 5. December 2011

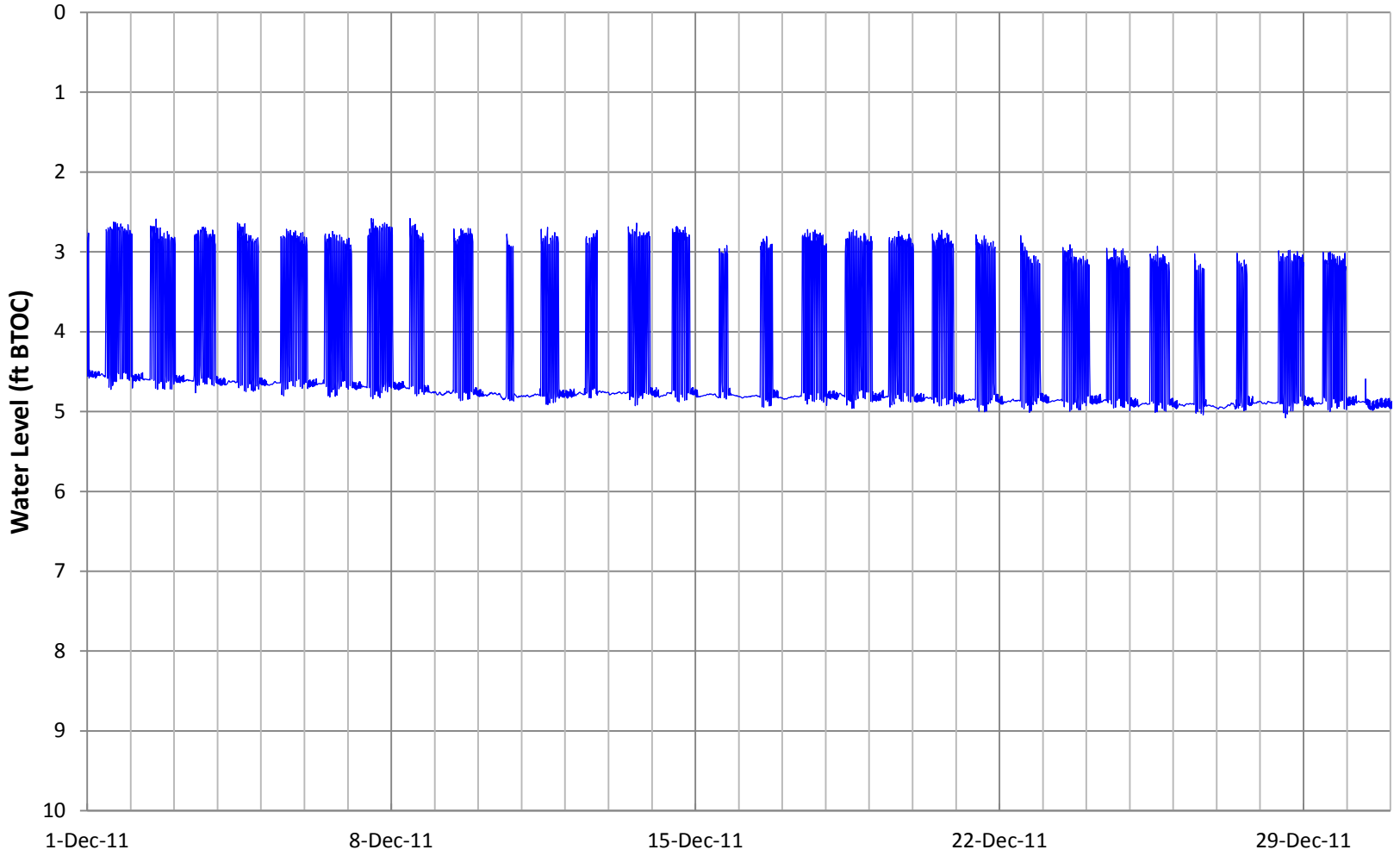


Figure C-4-5F

Water Level in IJ0013. Month 6. January 2012

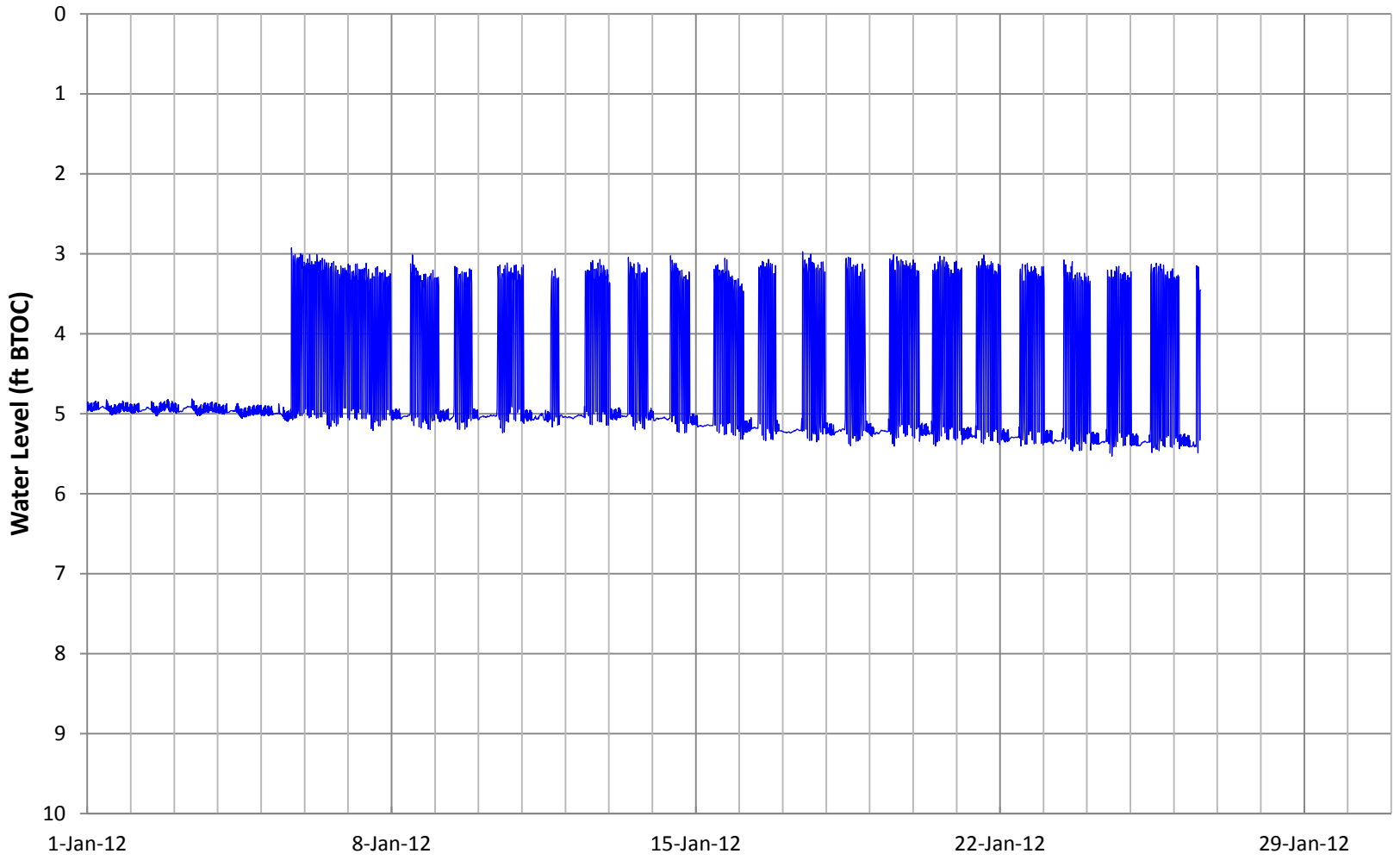


Figure C-4-6A

Water Level in IJ0014. Month 1. August 2011

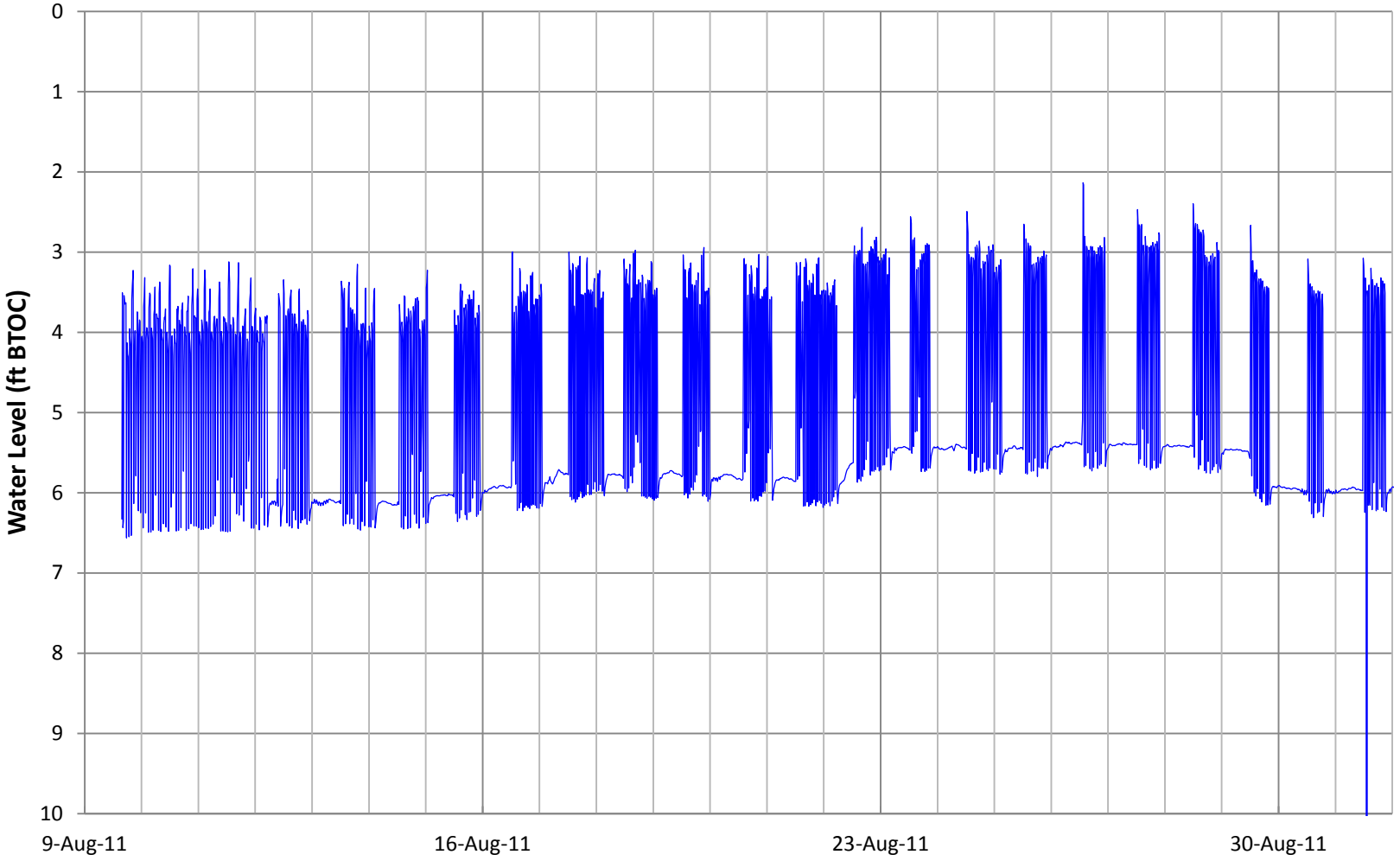


Figure C-4-6B

Water Level in IJ0014. Month 2. September 2011

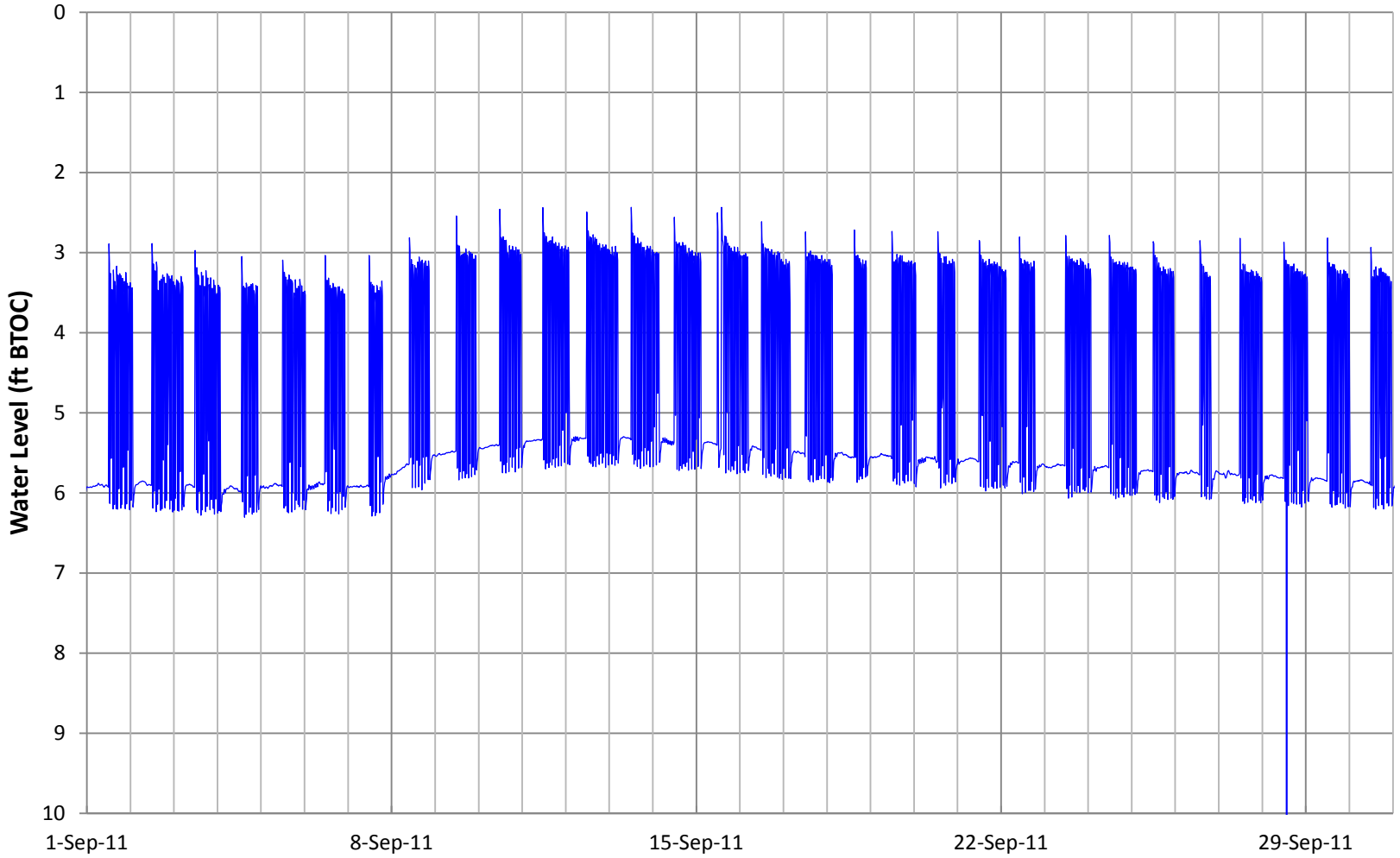


Figure C-4-6C

Water Level in IJ0014. Month 3. October 2011

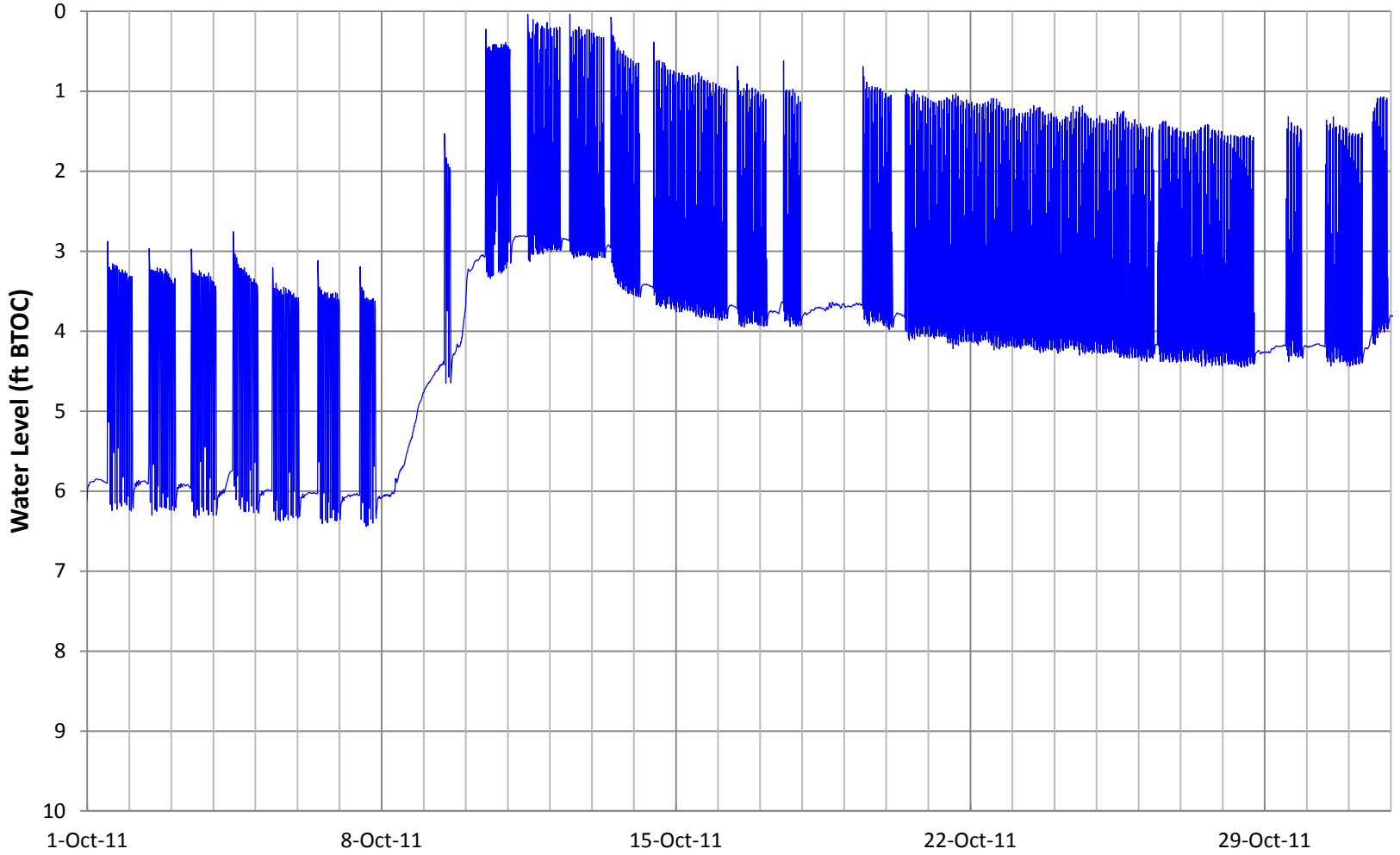


Figure C-4-6D

Water Level in IJ0014. Month 4. November 2011

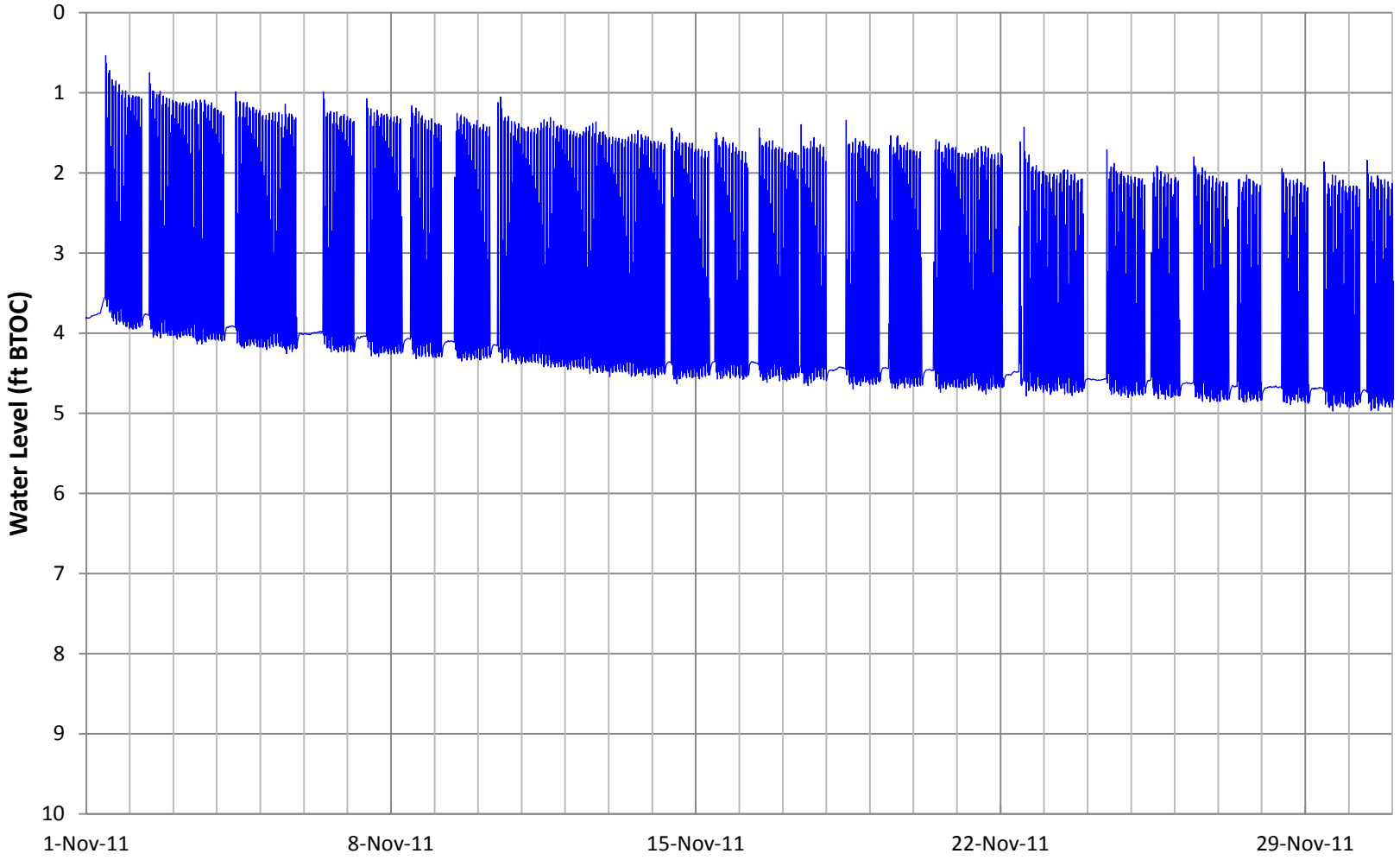


Figure C-4-6E

Water Level in IJ0014. Month 5. December 2011

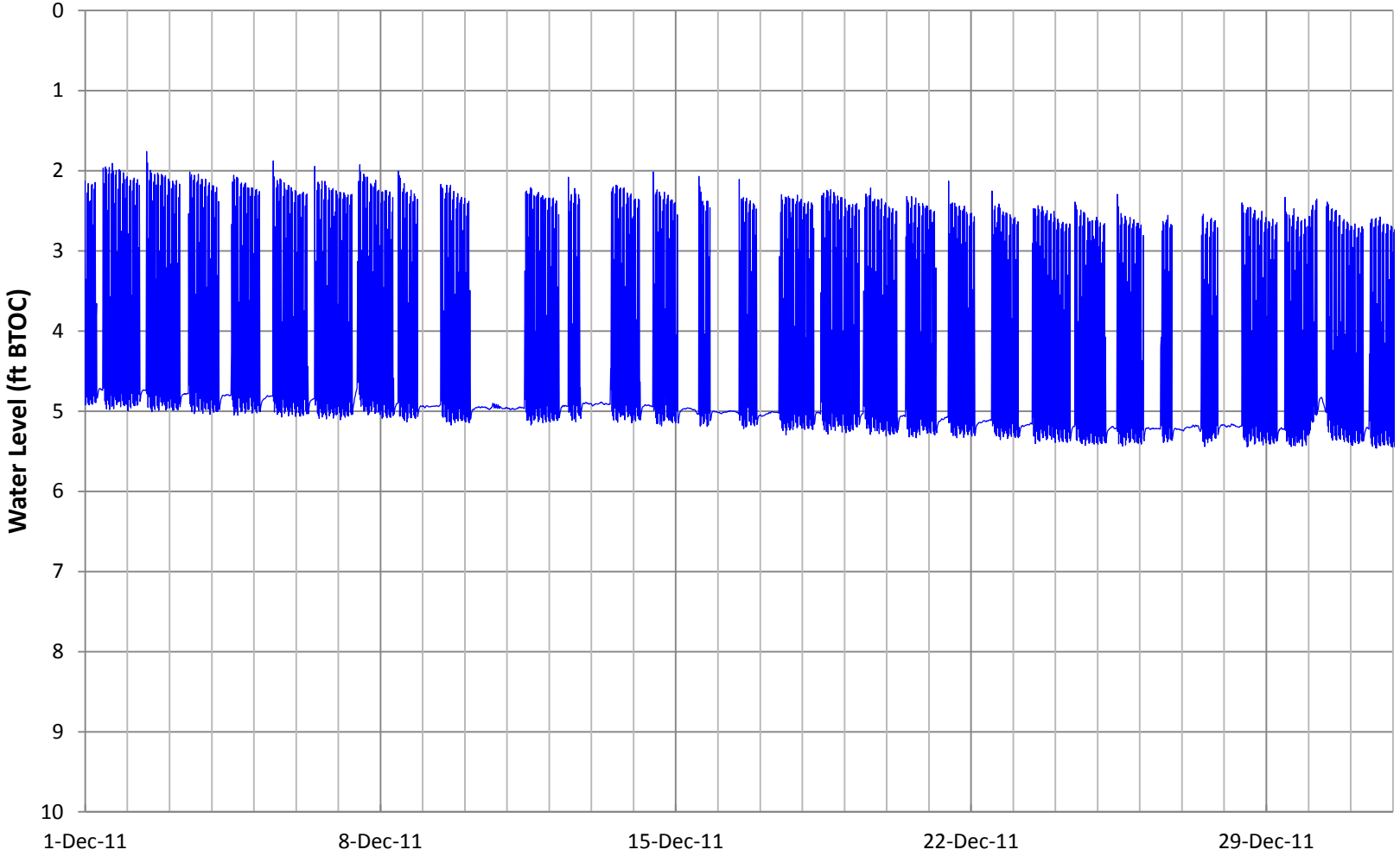


Figure C-4-6F

Water Level in IJ0014. Month 6. January 2012

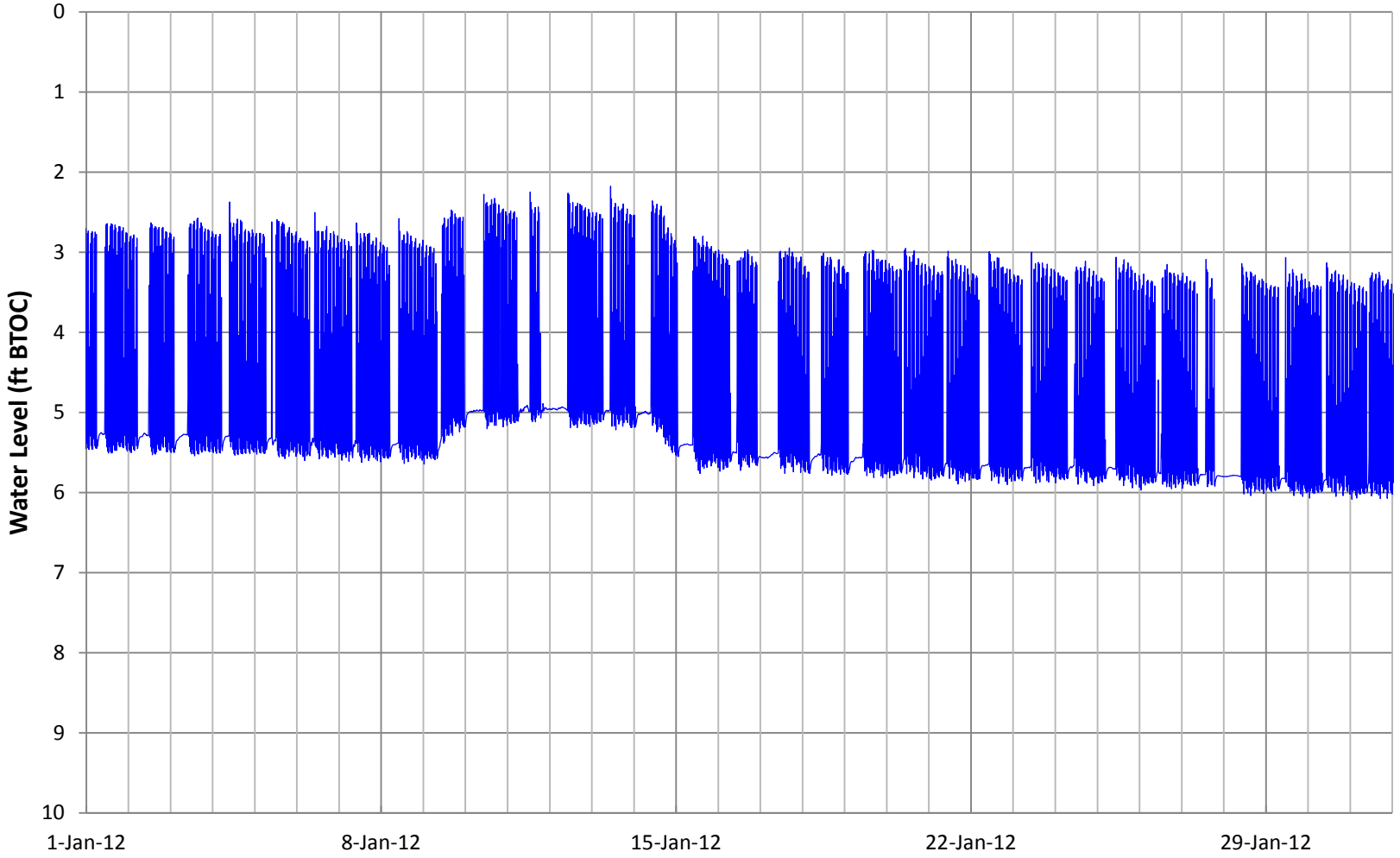
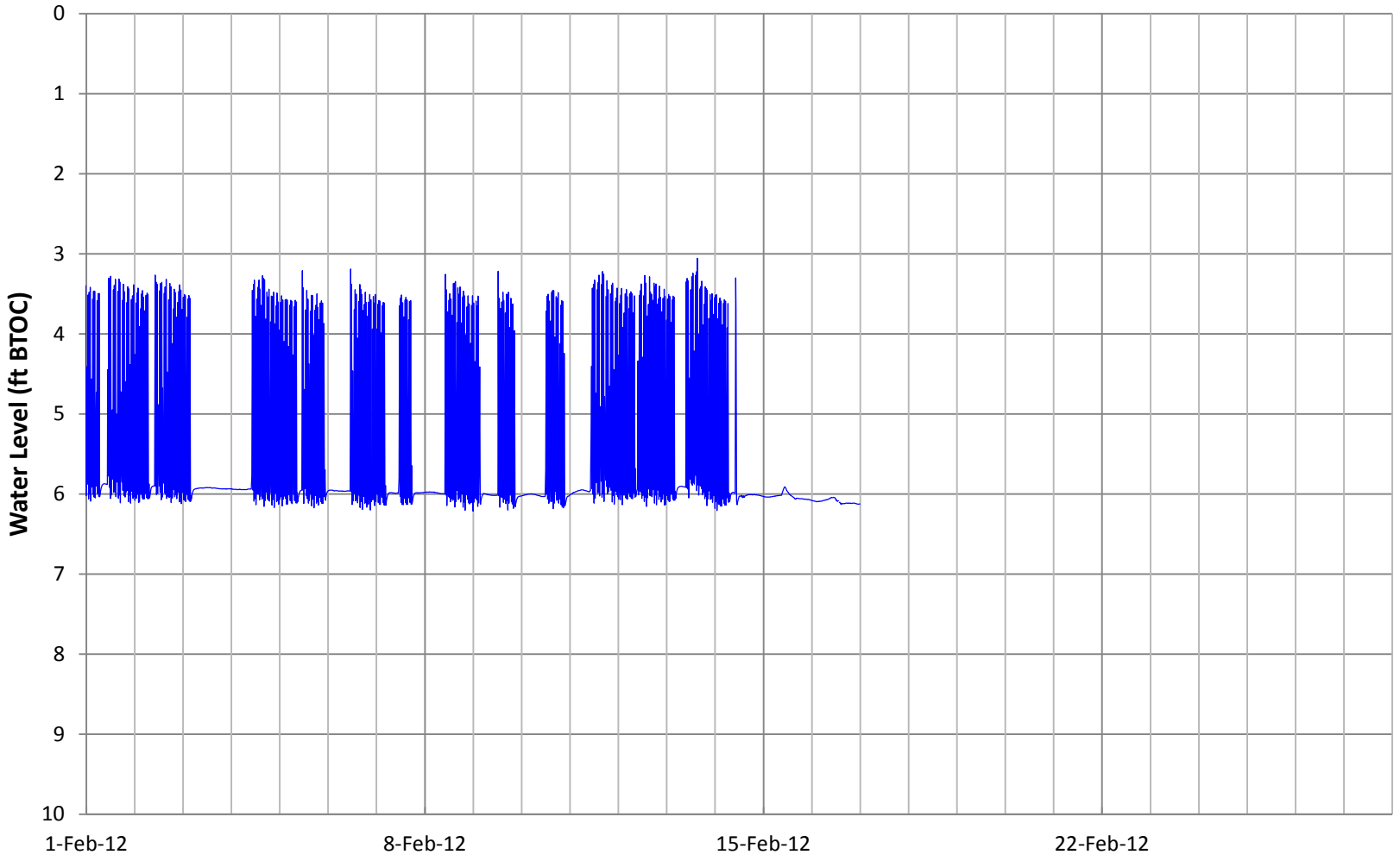


Figure C-4-6G

Water Level in IJ0014. Month 7. February 2012



ATTACHMENT C-5

RECIRCULATED PORE VOLUME ESTIMATES

RW0007

Pore Volume (gal)

Thickness (ft) \ Radius (ft)	5	10	16	20	25	30	35	40	45	Design PED	Design Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	1,234	4,935	12,635	19,742	30,847	44,419	60,460	78,968	99,943	11,783	62,840
10	1,763	7,051	18,050	28,203	44,067	63,456	86,371	112,811	142,776	16,832	89,772
15	2,644	10,576	27,075	42,304	66,100	95,184	129,556	169,216	214,164	25,248	134,658
20	3,525	14,101	36,099	56,405	88,133	126,912	172,742	225,622	285,552	33,665	179,544
25	4,407	17,627	45,124	70,507	110,167	158,640	215,927	282,027	356,940	42,081	224,430
30	5,288	21,152	54,149	84,608	132,200	190,368	259,112	338,432	428,329	50,497	269,316
36	6,346	25,382	64,979	101,530	158,640	228,442	310,935	406,119	513,994	60,596	323,179

	gal	kgal
baseline	58,644	58.6
main phase	243,414	243.4
IM phase	240,892	240.9
total w/ PED	484,306	484.3

porosity	0.3
gal/ft3	7.481
L/gal	3.785

Pore Volumes Extracted (equivalents) during BASELINE

Thickness (ft) \ Radius (ft)	5	10	16	20	25	30	35	40	45	Design PED	Design Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	47.5	11.9	4.6	3.0	1.9	1.3	1.0	0.7	0.6	5.0	0.9
10	33.3	8.3	3.2	2.1	1.3	0.9	0.7	0.5	0.4	3.5	0.7
15	22.2	5.5	2.2	1.4	0.9	0.6	0.5	0.3	0.3	2.3	0.4
20	16.6	4.2	1.6	1.0	0.7	0.5	0.3	0.3	0.2	1.7	0.3
25	13.3	3.3	1.3	0.8	0.5	0.4	0.3	0.2	0.2	1.4	0.3
30	11.1	2.8	1.1	0.7	0.4	0.3	0.2	0.2	0.1	1.2	0.2
36	9.2	2.3	0.9	0.6	0.4	0.3	0.2	0.1	0.1	1.0	0.2

Pore Volumes Extracted (equivalents) during MAIN PHASE

Thickness (ft) \ Radius (ft)	5	10	16	20	25	30	35	40	45	Design PED	Design Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	197.3	49.3	19.3	12.3	7.9	5.5	4.0	3.1	2.4	20.7	3.9
10	138.1	34.5	13.5	8.6	5.5	3.8	2.8	2.2	1.7	14.5	2.7
15	92.1	23.0	9.0	5.8	3.7	2.6	1.9	1.4	1.1	9.6	1.8
20	69.0	17.3	6.7	4.3	2.8	1.9	1.4	1.1	0.9	7.2	1.4
25	55.2	13.8	5.4	3.5	2.2	1.5	1.1	0.9	0.7	5.8	1.1
30	46.0	11.5	4.5	2.9	1.8	1.3	0.9	0.7	0.6	4.8	0.9
36	38.4	9.6	3.7	2.4	1.5	1.1	0.8	0.6	0.5	4.0	0.8

Pore Volumes Extracted (equivalents) during IM PHASE

Thickness (ft) \ Radius (ft)	5	10	16	20	25	30	35	40	45	Design PED	Design Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	195.2	48.8	19.1	12.2	7.8	5.4	4.0	3.1	2.4	20.4	3.8
10	136.7	34.2	13.3	8.5	5.5	3.8	2.8	2.1	1.7	14.3	2.7
15	91.1	22.8	8.9	5.7	3.6	2.5	1.9	1.4	1.1	9.5	1.8
20	68.3	17.1	6.7	4.3	2.7	1.9	1.4	1.1	0.8	7.2	1.3
25	54.7	13.7	5.3	3.4	2.2	1.5	1.1	0.9	0.7	5.7	1.1
30	45.6	11.4	4.4	2.8	1.8	1.3	0.9	0.7	0.6	4.8	0.9
36	38.0	9.5	3.7	2.4	1.5	1.1	0.8	0.6	0.5	4.0	0.7

RW0008

Pore Volume (gal)

Thickness (ft)	Radius (ft) 5	10	16	20	25	30	35	40	45	Design PED	Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	1,234	4,935	12,635	19,742	30,847	44,419	60,460	78,968	99,943	11,783	62,840
10	1,763	7,051	18,050	28,203	44,067	63,456	86,371	112,811	142,776	16,832	89,772
15	2,644	10,576	27,075	42,304	66,100	95,184	129,556	169,216	214,164	25,248	134,658
20	3,525	14,101	36,099	56,405	88,133	126,912	172,742	225,622	285,552	33,665	179,544
25	4,407	17,627	45,124	70,507	110,167	158,640	215,927	282,027	356,940	42,081	224,430
30	5,288	21,152	54,149	84,608	132,200	190,368	259,112	338,432	428,329	50,497	269,316
36	6,346	25,382	64,979	101,530	158,640	228,442	310,935	406,119	513,994	60,596	323,179

	gal	kgal
baseline	43,998	44.0
main phase	221,647	221.6
IM phase	239,179	239.2
total w/ PED	460,826	460.8

porosity	0.3
gal/ft3	7.481
L/gal	3.785

Pore Volumes Extracted (equivalents) during BASELINE

Thickness	Radius 5	10	16	20	25	30	35	40	45	Design PED	Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	35.7	8.9	3.5	2.2	1.4	1.0	0.7	0.6	0.4	3.7	0.7
10	25.0	6.2	2.4	1.6	1.0	0.7	0.5	0.4	0.3	2.6	0.5
15	16.6	4.2	1.6	1.0	0.7	0.5	0.3	0.3	0.2	1.7	0.3
20	12.5	3.1	1.2	0.8	0.5	0.3	0.3	0.2	0.2	1.3	0.2
25	10.0	2.5	1.0	0.6	0.4	0.3	0.2	0.2	0.1	1.0	0.2
30	8.3	2.1	0.8	0.5	0.3	0.2	0.2	0.1	0.1	0.9	0.2
36	6.9	1.7	0.7	0.4	0.3	0.2	0.1	0.1	0.1	0.7	0.1

Pore Volumes Extracted (equivalents) during MAIN PHASE

Thickness	Radius 5	10	16	20	25	30	35	40	45	Design PED	Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	179.6	44.9	17.5	11.2	7.2	5.0	3.7	2.8	2.2	18.8	3.5
10	125.7	31.4	12.3	7.9	5.0	3.5	2.6	2.0	1.6	13.2	2.5
15	83.8	21.0	8.2	5.2	3.4	2.3	1.7	1.3	1.0	8.8	1.6
20	62.9	15.7	6.1	3.9	2.5	1.7	1.3	1.0	0.8	6.6	1.2
25	50.3	12.6	4.9	3.1	2.0	1.4	1.0	0.8	0.6	5.3	1.0
30	41.9	10.5	4.1	2.6	1.7	1.2	0.9	0.7	0.5	4.4	0.8
36	34.9	8.7	3.4	2.2	1.4	1.0	0.7	0.5	0.4	3.7	0.7

Pore Volumes Extracted (equivalents) during IM PHASE

Thickness	Radius 5	10	16	20	25	30	35	40	45	Design PED	Sweep
area (ft^2)	79	314	804	1257	1963	2827	3848	5027	6362	750	4000
7	193.8	48.5	18.9	12.1	7.8	5.4	4.0	3.0	2.4	20.3	3.8
10	135.7	33.9	13.3	8.5	5.4	3.8	2.8	2.1	1.7	14.2	2.7
15	90.5	22.6	8.8	5.7	3.6	2.5	1.8	1.4	1.1	9.5	1.8
20	67.8	17.0	6.6	4.2	2.7	1.9	1.4	1.1	0.8	7.1	1.3
25	54.3	13.6	5.3	3.4	2.2	1.5	1.1	0.8	0.7	5.7	1.1
30	45.2	11.3	4.4	2.8	1.8	1.3	0.9	0.7	0.6	4.7	0.9
36	37.7	9.4	3.7	2.4	1.5	1.0	0.8	0.6	0.5	3.9	0.7

APPENDIX D

SAMPLING PROGRAM TABLES

TABLE D-1
GROUNDWATER SAMPLING SCHEDULE
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Event	Stage 2 - Baseline Initial											Stage 3 - Baseline Weekly during Baseline Recirculation											Stage 3 - Baseline Biweekly during Baseline Recirculation											Stage 3 - Baseline Snapshot following Baseline Recirculation (1 Month)										
Monitoring Well	FP [1]	VOCs [2]	VFAs [3]	Tracers [4]	TOC [5]	DHGs [6]	Sulfide [7]	Anions [8]	Alkalinity [9]	Dissolved Metals [10]	DHC Assay [11]	FP [1]	VOCs [2]	VFAs [3]	Tracers [4]	TOC [5]	DHGs [6]	Sulfide [7]	Anions [8]	Alkalinity [9]	Dissolved Metals [10]	DHC Assay [11]	FP [1]	VOCs [2]	VFAs [3]	Tracers [4]	TOC [5]	DHGs [6]	Sulfide [7]	Anions [8]	Alkalinity [9]	Dissolved Metals [10]	DHC Assay [11]	FP [1]	VOCs [2]	VFAs [3]	Tracers [4]	TOC [5]	DHGs [6]	Sulfide [7]	Anions [8]	Alkalinity [9]	Dissolved Metals [10]	DHC Assay [11]
Upper Zone / within Silty Clay																																												
RW0007	X	X										X	X	X	X	X												X	X					X	X	X	X	X	X	X	X	X	X	X
IW0002I	X	X										X	X																					X	X	X	X	X	X	X	X	X	X	
IW0002D	X	X										X	X																					X	X	X	X	X	X	X	X	X	X	
BW0001A	X	X																																X	X	X	X	X	X	X	X	X	X	
BW0001B	X	X																																X	X	X	X	X	X	X	X	X	X	
BW0001C	X	X										X	X																					X	X	X	X	X	X	X	X	X	X	X
BW0001D	X	X																																X	X	X	X	X	X	X	X	X	X	
BW0002A	X	X																																X	X	X	X	X	X					
BW0002B	X	X																																X	X	X	X	X	X					
BW0002C	X	X										X	X																					X	X	X	X	X	X	X	X	X		
BW0002D	X	X																																X	X	X	X	X	X					
BW0003A	X	X																																X	X	X	X	X	X					
BW0003B	X	X																																X	X	X	X	X	X					
BW0003C	X	X										X	X																					X	X	X	X	X	X	X	X	X		X
BW0003D	X	X																																X	X	X	X	X	X					
Lower Zone																																												
RW0008	X	X										X	X	X	X	X												X	X					X	X	X	X	X	X	X	X	X	X	X
IW0002DI	X	X										X	X																					X	X	X	X	X	X	X	X	X	X	
BW0001E	X	X										X	X																					X	X	X	X	X	X	X	X	X	X	X
BW0001F	X	X																																X	X	X	X	X	X	X	X	X	X	
BW0002E	X	X																																X	X	X	X	X	X					
BW0002F	X	X																																X	X	X	X	X	X					
BW0003E	X	X										X	X																					X	X	X	X	X	X					X
BW0003F	X	X																																X	X	X	X	X	X					
Outside the Treament Area																																												
IW0076 (below)	X	X																																X	X	X	X	X	X				X	
IW0067D	X	X																																X	X			X						
IW0067D1	X	X																																X	X			X						
IW0070D	X	X																																X	X			X						
IW0070D1	X	X																																X	X			X						
IW0071D	X	X																																X	X			X						
IW0071D1	X	X																																X	X			X						

TABLE D-1
GROUNDWATER SAMPLING SCHEDULE
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Event	Stage 4 - PED Injection Confirmation Snapshot - Distribution at Wells											Stage 5 - Biomass Growth										
Monitoring Well	FP [1]	VOCs [2]	VFAs [3]	Tracers [4]	TOC [5]	DHGs [6]	Sulfide [7]	Anions [8]	Alkalinity [9]	Dissolved Metals [10]	DHC Assay [11]	FP [1]	VOCs [2]	VFAs [3]	Tracers [4]	TOC [5]	DHGs [6]	Sulfide [7]	Anions [8]	Alkalinity [9]	Dissolved Metals [10]	DHC Assay [11]
Upper Zone / within Silty Clay																						
RW0007		X		X								X	X	X	X	X	X	X	X	X	X	
IW0002I												X	X	X	X	X	X	X	X	X	X	
IW0002D												X	X	X	X	X	X	X	X	X	X	
BW0001A												X	X	X	X	X	X	X	X	X	X	
BW0001B												X	X	X	X	X	X	X	X	X	X	
BW0001C		X		X								X	X	X	X	X	X	X	X	X	X	
BW0001D		X		X								X	X	X	X	X	X	X	X	X	X	
BW0002A												X	X	X	X	X	X					
BW0002B												X	X	X	X	X	X					
BW0002C		X		X								X	X	X	X	X	X	X	X	X		
BW0002D		X		X								X	X	X	X	X	X					
BW0003A												X	X	X	X	X	X					
BW0003B												X	X	X	X	X	X					
BW0003C		X		X								X	X	X	X	X	X	X	X	X		
BW0003D		X		X								X	X	X	X	X	X					
Lower Zone																						
RW0008		X		X								X	X	X	X	X	X	X	X	X	X	
IW0002DI												X	X	X	X	X	X	X	X	X	X	
BW0001E		X		X								X	X	X	X	X	X	X	X	X	X	
BW0001F												X	X	X	X	X	X	X	X	X	X	
BW0002E		X		X								X	X	X	X	X	X					
BW0002F												X	X	X	X	X	X					
BW0003E		X		X								X	X	X	X	X	X					
BW0003F												X	X	X	X	X	X					
Outside the Treament Area																						
IW0076 (below)												X	X	X	X	X	X				X	
IW0067D																						
IW0067D1																						
IW0070D																						
IW0070D1																						
IW0071D																						
IW0071D1																						

TABLE D-1
GROUNDWATER SAMPLING SCHEDULE
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Event	Stage 6 - System Operation Weekly (for first month) & Bi-weekly (for five months)											Stage 6 - System Operation Snapshot (Month 3)											Stage 6 - System Operation Snapshot (Month 7)										
Monitoring Well	**FP [1]**	**VOCs [2]**	**VFAs [3]**	**Tracers [4]**	**TOC [5]**	**DHGs [6]**	**Sulfide [7]**	**Anions [8]**	**Alkalinity [9]**	**Dissolved Metals [10]**	**DHC Assay [11]**	**FP [1]**	**VOCs [2]**	**VFAs [3]**	**Tracers [4]**	**TOC [5]**	**DHGs [6]**	**Sulfide [7]**	**Anions [8]**	**Alkalinity [9]**	**Dissolved Metals [10]**	**DHC Assay [11]**	**FP [1]**	**VOCs [2]**	**VFAs [3]**	**Tracers [4]**	**TOC [5]**	**DHGs [6]**	**Sulfide [7]**	**Anions [8]**	**Alkalinity [9]**	**Dissolved Metals [10]**	**DHC Assay [11]**
Upper Zone / within Silty Clay																																
RW0007	X	X	X	X	X	X	X	X	X	X	X [12]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IW0002I												X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
IW0002D												X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
BW0001A												X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
BW0001B												X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
BW0001C												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BW0001D												X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
BW0002A												X	X	X	X	X	X						X	X	X	X	X	X					
BW0002B												X	X	X	X	X	X						X	X	X	X	X	X					
BW0002C												X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X		
BW0002D												X	X	X	X	X	X						X	X	X	X	X	X					
BW0003A												X	X	X	X	X	X						X	X	X	X	X	X					
BW0003B												X	X	X	X	X	X						X	X	X	X	X	X					
BW0003C												X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X			X
BW0003D												X	X	X	X	X	X						X	X	X	X	X	X					
Lower Zone																																
RW0008	X	X	X	X	X	X	X	X	X	X	X [12]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IW0002DI												X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
BW0001E												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BW0001F												X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
BW0002E												X	X	X	X	X	X						X	X	X	X	X	X					
BW0002F												X	X	X	X	X	X						X	X	X	X	X	X					
BW0003E												X	X	X	X	X	X					X	X	X	X	X	X	X					X
BW0003F												X	X	X	X	X	X						X	X	X	X	X	X					
Outside the Treament Area																																
IW0076 (below)												X	X	X	X	X	X				X		X	X	X	X	X	X				X	
IW0067D												X	X										X	X			X						
IW0067D1												X	X										X	X			X						
IW0070D												X	X										X	X			X						
IW0070D1												X	X										X	X			X						
IW0071D												X	X										X	X			X						
IW0071D1												X	X										X	X			X						

TABLE D-1
GROUNDWATER SAMPLING SCHEDULE
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Event	Stage 7 - Interim Measures Monthly											Stage 7 - Interim Measures Snapshot (Month 10)										Stage 7 - Interim Measures Snapshot (Month 13)										
Monitoring Well	**FP [1]**	**VOCs [2]**	**VFAs [3]**	**Tracers [4]**	**TOC [5]**	**DHGs [6]**	**Sulfide [7]**	**Anions [8]**	**Alkalinity [9]**	**Dissolved Metals [10]**	**DHC Assay [11]**	**FP [1]**	**VOCs [2]**	**VFAs [3]**	**Tracers [4]**	**TOC [5]**	**DHGs [6]**	**Sulfide [7]**	**Anions [8]**	**Alkalinity [9]**	**Dissolved Metals [10]**	**DHC Assay [11]**	**FP [1]**	**VOCs [2]**	**VFAs [3]**	**Tracers [4]**	**TOC [5]**	**DHGs [6]**	**Sulfide [7]**	**Anions [8]**	**Alkalinity [9]**	**Dissolved Metals [10]**	**DHC Assay [11]**
Upper Zone / within Silty Clay																																
RW0007	X	X										X	X			X	X					X	X	X	X			X	X				X
IW0002I												X	X			X	X					X	X	X	X			X	X				
IW0002D												X	X			X	X					X	X	X	X			X	X				
BW0001A												X	X			X	X					X	X	X	X			X	X				
BW0001B												X	X			X	X					X	X	X	X			X	X				
BW0001C												X	X			X	X					X	X	X	X			X	X				X
BW0001D												X	X			X	X					X	X	X	X			X	X				
BW0002A												X	X			X	X					X	X	X	X			X	X				
BW0002B												X	X			X	X					X	X	X	X			X	X				
BW0002C												X	X			X	X					X	X	X	X			X	X				
BW0002D												X	X			X	X					X	X	X	X			X	X				
BW0003A												X	X			X	X					X	X	X	X			X	X				
BW0003B												X	X			X	X					X	X	X	X			X	X				
BW0003C												X	X			X	X					X	X	X	X			X	X				X
BW0003D												X	X			X	X					X	X	X	X			X	X				
Lower Zone																																
RW0008	X	X										X	X			X	X					X	X	X	X			X	X				X
IW0002DI												X	X			X	X					X	X	X	X			X	X				
BW0001E												X	X			X	X					X	X	X	X			X	X				X
BW0001F												X	X			X	X					X	X	X	X			X	X				
BW0002E												X	X			X	X					X	X	X	X			X	X				
BW0002F												X	X			X	X					X	X	X	X			X	X				
BW0003E												X	X			X	X					X	X	X	X			X	X				X
BW0003F												X	X			X	X					X	X	X	X			X	X				
Outside the Treament Area																																
IW0076 (below)												X	X			X	X						X	X			X	X				
IW0067D												X	X																				
IW0067D1												X	X																				
IW0070D												X	X																				
IW0070D1												X	X																				
IW0071D												X	X																				
IW0071D1												X	X																				

Notes

[1] Field Parameters (FP) are pH, dissolved oxygen, oxidation-reduction potential, specific conductivity, temperature and groundwater elevation

[2] VOCs are Chlorinated Volatile Organic Compounds plus n-butyl acetate (the PED) and n-butanol

[3] VFAs are Volatile Fatty Acids (includes acetic, butyric, lactic and propionic acids)

[4] Tracers include bromide and iodide

[5] TOC is Total Organic Carbon

[6] DHGs are Dissolved Hydrocarbon Gases (i.e., methane, ethene and ethane)

[7] Sulfide is Total Sulfides

[8] Anions include chloride, sulfate, nitrate and nitrite

[9] Alkalinity is Total Alkalinity

[10] Dissolved Metals includes iron, manganese and arsenic

[11] DHC Assay refers to quantitative polymerase chain reaction (qPCR) analysis using the 16S rRNA gene (i.e., SiREM Laboratory's Gene-Trac-Dhc analysis) or the qPCR method used to quantify the Dehalococcoides vinyl chloride reductase (vcrA)

[12] DHC Assay samples were collected monthly and archived

APPENDIX E

DATA SUMMARY

APPENDIX E

DATA SUMMARY

This appendix presents all of the data that was collected during the DEM/VAL, including that collected for the Interim Measure Work Plan (IMWP) for NASA, referred to in this report as the Interim Measure Recirculation Phase.

E.1 SOIL SAMPLING RESULTS

Soil VOC results are presented in Table E-1-1 in Attachment E-1 to this Appendix. The laboratory reports from these sampling events are provided in Appendix G. Samples were collected four times over the course of the DEM/VAL: Baseline, post-Biomass Growth Phase, post-Main Recirculation Phase, and post-Interim Measure Recirculation Phase. The sampling locations are shown in Figure 17 (main document). Baseline samples were collected at the locations of extraction well RW0008 and the three bundle wells. The PED, nBA and its degradation intermediate nBuOH were not detected above the method detection limits in the baseline soil samples that were collected. Baseline organic carbon samples were collected, the fraction of organic carbon (f_{oc}) ranged from 0.00065 to 0.00311 (see Table E-1-2 in Attachment E-1). The highest TCE concentration detected was 22 mg/kg^{wet}, which is well below the 300 mg/kg that is considered representative of NAPL-phase TCE at the site but similar to the 43 mg/kg measured during previous soil coring. This sample was collected from location SB1003 (at BW0001) at a depth of 44 ft BLS, within the silty clay. The maximum TCE concentration in each boring occurred at a similar depth of 44 to 45 ft BLS, although the other locations sampled did not have much TCE.

For the rest of the DEM/VAL, soil sample collection focused on three areas (refer to Figure 17). One was adjacent to the extraction wells (and SB1001) (DPT0332, DPT0346, DPT0349), one was located southwest of BW0001 (and SB1003) (DPT0333, DPT0347, DPT0350), and one was located northeast of BW0001 (and SB1003) (DPT0334, DPT0348, DPT0351).

The samples collected at the end of the Biomass Growth Phase contained higher concentrations of TCE than the baseline samples. The differences reflect natural variability in soil sample collection, as well as the fact that locations and depths were selected to focus on the three selected areas and to try to detect mass within the low conductivity silty clay unit. These data provide a better baseline for comparison with the Month 7 and Month 13 samples. The maximum TCE concentration was 70 mg/kg^{dry}, at 43.5 ft BLS at DPT0332, which is higher than baseline or otherwise previously measured in the area (refer to Section 4.3). Similar results were obtained for samples from 44.0 and 45.5 ft BLS at DPT0333.

In general, it appeared the PED was not present at the sampled locations. The PED, nBA, was only detected in a few locations, at very low concentrations. Minor amounts of nBuOH were

observed in a couple of samples. Nothing could be discerned about the possible partitioning of the nBA into TCE-NAPL.

Similar results were obtained at the end of the Main Recirculation Phase (Month 7), with maximum TCE concentration of 75 mg/kg^{dry} at DPT0348. Again spatial variability appeared to be more significant than changes due to operation of the DEM/VAL. At location DPT0346, the maximum TCE concentration declined from 70 to 4.8 mg/kg^{dry}, while at location DPT0348 the maximum TCE concentration increased from 31 to 75 mg/kg^{dry}, even with samples collected at the same depth. Similar results were obtained at the end of the Interim Measure Recirculation Phase (Month 13), with maximum TCE concentration of 75 mg/kg^{dry} at DPT0350. There was again considerable spatial variability.

Although it is admittedly a very crude approach, all of the results for each event were averaged together to develop an estimate of the mass of TCE and cDCE in soils at the locations sampled. There appears to be some decline in the amount of TCE detected over the course of the DEM/VAL, from the end of the Biomass Growth Phase to the end of the Main Recirculation Phase (Month 7) to the end of the Interim Measure Recirculation Phase (Month 13). Note that baseline is quite different because it represents a different set of locations. However, the analysis is not very robust, given the observed degree of spatial variability.

Average Soil Concentrations (mg/kg)

	TCE	**cDCE**
Baseline	3.60	2.35
Post Biomass Growth	21.27	2.89
Post Main Recirculation Phase (Month 7)	13.07	5.83
Post Interim Measure Recirculation Phase (Month 13)	10.23	5.70

E.2 TASK 2 – INITIAL BASELINE

Results from the Initial Baseline sampling event are compiled and presented in Tables E-1-5 (VOCs) and E-1-9 (Field Parameters) in Attachment E-1 of this Appendix. The VOC data is included in Figures 3, and 4 (main document) for the extraction wells and the corresponding figures in Attachments E-2 and E-3 for other locations. The results were incorporated into the interpolated TCE distribution presented in Figure 16 (main document). The laboratory reports from this sampling event are provided in Appendix G.

E.3 TASK 3 – BASELINE FLUX ASSESSMENT

Results from the Baseline Flux Assessment Phase sampling events are compiled and presented in Tables E-1-5 (VOCs), E-1-6 (DHGs, Anions and Tracers), E-1-7 (TOC, VFAs and nBA), E-1-8 (Dissolved Metals), E-1-9 (Field Parameters) and E-1-10 (*Dhc* and *vcr*A) in Attachment E-1 of

this Appendix. The VOC data is plotted in Figures 1, 3, 4, and 20 (main document) and in the corresponding time-trend and VOC distribution plots included in Attachments E-2 and E-3. The laboratory reports from these sampling events are provided in Appendix G.

E.4 TASK 4 – INTRODUCTION OF PED AND TRACERS

Results from the batch QC sampling are compiled and presented in Table E-1-3 in Attachment E-1 of this Appendix.

The results from the confirmation DPT groundwater sampling are compiled and presented in Table E-1-4 in Attachment E-1 and an analysis of this data is presented in Table E-4-1 in Attachment E-4 of this Appendix. The laboratory reports are provided in Appendix G.

The results from the monitoring well confirmation sampling event are presented in Tables E-1-5 (VOCs, nBA and nBuOH), E-1-6 (Tracers) and E-1-9 (Field Parameters) in Attachment E-1; this data is also presented in Table E-4-2 in Attachment E-4, where tracer and PED data are presented together to assess recovery ratios. The results are plotted in Figures 1, 3, 4 and 20 of the main document for the extraction wells (and the corresponding figures in Attachments E-2 and E-3 for other wells). The laboratory reports are provided in Appendix G.

E.5 TASK 5 – BIOMASS GROWTH PHASE

Results from the Biomass Growth Phase sampling event are compiled and presented in Tables E-1-5 (VOCs, nBA and nBuOH), E-1-6 (DHGs, Anions and Tracers), E-1-7 (TOC, VFAs and nBA), E-1-8 (Dissolved Metals), and E-1-9 (Field Parameters) in Attachment E-1. The VOC data is plotted in Figures 1, 3, 4 and 20 (main document) for the extraction wells (and the corresponding time-trend and distribution figures in Attachments E-2 and E-3 for other wells). This data is used in the estimates of VOC mass remaining in the DEM/VAL treatment zone over the course of operations (refer to Section E.6.1 and Attachment E-6). The TOC and VFA data is also plotted in Figure 2 (main document). The laboratory reports from these sampling events are provided in Appendix G.

E.6 TASK 6 - GROUNDWATER SAMPLING RESULTS

Groundwater samples collected from the central extraction wells (RW0007 and RW0008) make up the primary data set, which includes field parameters, VOCs, nBA, nBuOH, DHGs, VFAs, alkalinity, anions, dissolved metals, and microbial characterization numbers. Additional data was collected during synoptic events from the entire monitoring well network.

All of the data collected for the DEM/VAL is tabulated in Attachment E-1 to this Appendix, including:

- Table E-1-3 Summary of PED Injectate Batch QC Sampling Results
- Table E-1-4 Summary of PED Injection Confirmation Grab Groundwater Sampling Results - PED, VOCs and Tracers
- Table E-1-5 Summary of Groundwater Sampling Results: Volatile Organic Compounds
- Table E-1-6. Summary of Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers
- Table E-1-7 Summary of Groundwater Sampling Results: TOC, VFAs and nBA
- Table E-1-8 Summary of Groundwater Sampling Results: Dissolved Metals
- Table E-1-9 Summary of Groundwater Sampling Results: Field Geochemical Parameters
- Table E-1-10 Summary of Groundwater Sampling Results: Dehalococcoides and Vinyl Chloride Reductase

Attachment E-2 to this Appendix presents time-series plots of various analytes for each monitoring well location. For each monitoring location there is a set of four time-series plots, as follows:

A) VOC data using molar concentrations;
B) electron donor results, including nBA, nBuOH, VFA and TOC concentration data;
C) bromide and iodide tracer concentrations through the end of the Main Recirculation Phase (these analytes were not part of the sample program in the Interim Measure Recirculation Phase); and
D) several geochemical parameters, including methane, ethane, sulfate and sulfide concentrations.

Attachment E-3 to this Appendix presents the VOC distribution history for each monitoring well location in the form of a stacked bar chart, which shows how the total VOC concentrations varied over time as well as how the composition varied. These figures show the changes in total VOC concentration that were observed following PED addition.

Attachment E-4 to this Appendix presents several tables and figures used for data analysis. Attachment E-5 presents a summary of the results on a molar concentration basis, including tables and figures used in the analysis. Attachment E-6 presents estimates of the VOC mass remaining in the DEM/VAL treatment zone over the course of the demonstration.

E.6.1 VOC TRENDS

Groundwater samples were analyzed for a suite of VOCs, including TCE and its less-chlorinated breakdown products. These results were used to determine the baseline conditions in the test plots and assess the mass flux over time, including an evaluation of the extent of VOC dechlorination and identification of active degradation pathways. All VOC data collected from

the monitoring wells over the course of the DEM/VAL are presented in Table E-1-5 in Attachment E-1 to this Appendix. This data is also presented in several figures. Figure 3a (main document) presents the VOC data at RW0007 as a time-series, including the Initial Baseline and Baseline Flux Assessment results. Figure 3b (main document) presents the VOC data at RW0008 as a time-series**.** Time-series plots for other monitoring locations are shown in Attachment E-2 in this Appendix. Figures 1a and 20a (main document) show the VOC distribution history for RW0007, while Figures 1b and 20b show the VOC distribution history for RW0008. Attachment E-3 in this Appendix contains similar figures for the other monitoring locations.

Figure 4a and Figure 4b (main document) illustrate a quantitative analysis of the extent of dechlorination for RW0007 and RW0008, respectively. The extent of reductive dechlorination in a sample was characterized by calculating the fraction of chlorine removed from the equivalent concentration of TCE (calculated as the sum of the concentration of all chloroethenes and ethene) using the following equation, modified from Hood et al. (2008):

$$\text{Dechlorination Score (\%)} = \left(1 - \frac{3[TCE]+2[cDCE]+2[tDCE]+[VC]}{3([TCE]+[cDCE]+[tDCE]+[VC]+[ethene])}\right) \text{ x } 100$$

where the parentheses indicate molar concentrations and scores of 33%, 67% and 100% represent complete conversion to DCE, VC, and ethene, respectively. Whereas Hood et al. (2008) performed this calculation at a number of locations and presented summary statistics of the dechlorination scores for each sampling event, the values in Figures 4a and 4b are the results of singular analyses for RW0007 and RW0008, respectively, for each event.

The dissolved concentrations of TCE, cDCE and VC were used to estimate the mass of VOCs remaining in DEM/VAL treatment zones over the course of operations. The results are summarized in Attachment E-6. For each synoptic event, the average concentration of each VOC was determined in each of the three zones (upper, middle and lower) using all of the monitoring locations within each zone. Table E-6-1 presents the resulting average concentrations and corresponding mass estimates, calculated by multiplying the concentrations by the estimated groundwater volume in each zone. Estimates of the total mass including sorbed mass were made by calculating compound-specific partitioning coefficients within each zone assuming a linear sorption isotherm dependent on the fraction of organic carbon in the aquifer solids (i.e., $K_d = K_{ow} * f_{oc}$). The total VOC (TVOC) mass estimates are plotted in Figure E-6-1 (see Figure 21 of main document). Note that TVOC mass was estimated using compound mass concentrations rather than molar concentrations and hence are not directly comparable to TCE equivalents.

E.6.2 ELECTRON DONORS

Table E-1-7 in Attachment E-1 presents concentration data for the electron donor species, including nBA, nBuOH, TOC and VFAs. This data is plotted, in molar concentration units, in the 'B' series of figures in Attachment E-2.

In water, nBA can undergo hydrolysis to form nBuOH and acetic acid, both of which can be utilized as electron donors. Butanol is utilized by fermenting organisms to produce butyric acid, acetate and hydrogen. Based on post-injection samples, it appeared that a portion of the nBA was hydrolyzed relatively quickly following injection. Confirmation samples collected about a week after injection showed that significant concentrations of nBuOH had been formed (up to 520 mg/L, with an average concentration of 184 mg/L), representing on average 38% of the PED in these samples (Table E-4-2 in Attachment E-4). At the end of the Biomass Growth Phase, nBuOH was 84% of the total PED found (i.e. nBA plus nBuOH; Table E-4-3 in Appendix E).

Groundwater samples were analyzed for TOC at baseline as an indicator of the concentration of available organic carbon available naturally at the site. Following PED amendment, TOC served a gross indicator of the availability of electron donor in the subsurface. Groundwater samples were analyzed for VFAs to assess the presence of carbon substrates that can serve as electron donors during anaerobic biodegradation of VOCs. VFAs such as acetate can be produced by the metabolism of acetogenic microorganisms while growing on simple carbon compounds such as nBA. These organic acids can then serve as growth substrates and electron donors in VOC dechlorination reactions. Tables E-5-5 and E-5-10 in Attachment E-5, for RW0007 and RW0008, respectively, present the TOC and VFA data together for comparison, including plots that illustrate the mixture of carbon-containing compounds present over time. The TOC data correlated well with the more specific analyses, such as volatile fatty acids, demonstrating that this relatively inexpensive parameter could be used to monitor EISB performance in place of the more expensive, specific analyses, at least some of the time. Acetate and butanoate were the primary VFAs detected and the major components of the TOC. Even at the end of the Main Recirculation Phase, butanoate represented about 25% of the TOC at RW0007 (63% was acetate) and 6% of the TOC at RW0008 (84% was acetate). Persistence of butanoate, particularly in the upper zone, is a benefit of the nBA. The TOC and VFA data is presented in Figures 2a and 2b of the main document for RW0007 and RW0008, respectively.

E.6.3 TRACERS

Table E-1-6 in Attachment E-1 to this Appendix presents concentration data for the bromide and iodide tracers through the end of the Main Recirculation Phase (these analytes were not part of the sample program in the Interim Measure Recirculation Phase). The tracer results are plotted in the 'c' series of figures in Attachment E-2 to this Appendix.

No iodide was ever detected, above the method detection limit, in monitoring locations in the lower zone which infers that there was very little movement of fluid from the upper sweep zone to the lower sweep zone.

During PED Injection Confirmation sampling, some of the DPT grab samples were analyzed for the bromide and iodide tracers. The results are presented in Table E-1-4 in Attachment E-1 to this Appendix. A comparison of PED concentrations to the tracer concentrations was made. The measured concentrations of each were normalized to their respective concentrations in the injectate batches (refer to Table E-1-3). For the PED, the concentrations of nBA and nBuOH (as nBA equivalents) were combined when estimating nBA recovery. Bromide and iodide concentrations were used as measured, since baseline concentrations included a lot of non-detect values, making background correction difficult and prone to introduce errors. The results are presented in Table E-4-1 in Attachment E-4 to this Appendix. The average ratio of normalized nBA to normalized bromide concentration was 0.52, although if the three samples with nBA concentrations below 1,000 µg/L are omitted, the ratio is 0.69. This suggests that relatively less PED is recovered than bromide tracer. Although based on only three sample results, the ratio of normalized bromide to normalized iodide concentrations was about 2.2, suggesting bromide was over-recovered relative to iodide.

A similar analysis of PED concentrations relative to tracer concentrations was performed for samples collected from the monitoring well network on 07 July 2011, a week after PED injection, and on 01 August 2011, following the shut-in period (post-Biomass Growth Phase). The calculations are presented in Tables E-4-2 and E-4-3 in Attachment E-4 to this Appendix. On 07 July 2011, based on 11 samples, the average ratio of the normalized PED to normalized bromide concentration was 0.77, although the ratio of PED to bromide recovered in individual samples ranged from 0.06 to 1.49. On 01 August 2011, the same subset of wells had an average PED to bromide ratio of 0.53 (considering all wells, the ratio was 0.51).

The concentration of bromide in extraction well RW0007 was always higher than that from RW0008, on average by a factor of about 3 (refer to Table E-1-6). Part of the difference may come from the slightly different positions of each extraction well within the PED injected area, such that the capture zone of each might be expected to draw tracer amended fluids slightly differently. However, the greater sustained concentrations at RW0007 suggest that more bromide mass was introduced to the upper sweep zone than the lower.

The TOC and tracer data from each extraction well is plotted in Figure E-4-1 in Attachment E-4. The concentrations of TOC, bromide and iodide are normalized to their average concentrations in the injectate batches. Tracer data was only collected through the end of the Main Recirculation Phase and TOC was only measured quarterly beyond this. At RW0007, bromide was recovered in greater proportion than TOC and iodide. TOC is not expected to be conservative, but it is reasonable to expect bromide and iodide to behave similarly, since they were added together in all injection fluids in the upper zone. One possibility is that more

bromide was delivered to the upper zone than anticipated. This could have occurred if fluids injected into the silty clay or the lower aquifer flowed back along the DPT rods, since this injectate contained only bromide as a tracer. Although there was no indication of this at the time of injection, it would result in additional bromide and nBA being delivered to the upper zone. In the lower zone, at RW0008, the relative recoveries of TOC and bromide were quite similar. Since bromide and TOC (as nBA) were added in constant proportion during injection, any short-circuit flow to the upper zone that might have occurred during injection would affect the normalized concentrations of both equally. It would however result in lower than expected concentrations of both TOC and bromide.

Tracer recovery at the extraction wells is plotted in Figure E-4-2 in Attachment E-4. The tracer concentration data was combined with the extracted volume measurements to estimate the cumulative mass of tracer recovered in extracted groundwater. For the upper zone (RW0007) it is estimated that 11.6 kg of bromide were recovered, which is 3.0 times the bromide mass injected into the upper zone (3.9 kg). At the same time, an estimated 10.7 kg of iodide was recovered, which is 1.2 times the mass injected (9.0 kg). Note that the bromide recovery may have been somewhat higher: the bromide concentrations were background corrected by the average bromide concentrations (1.25 mg/L) observed during the Baseline Flux Assessment. With no background correction, the bromide mass recovered was 12.8 kg (3.3 times the bromide mass injected into the upper zone). In either case, the recovery of bromide was much greater than that of iodide, suggesting either that iodide was not conservative in the system or that extra bromide was introduced. An upper limit on the bromide introduced to the upper zone would be to consider the total mass added to the upper, middle and lower zones. The recovered bromide mass in the upper zone was actually 1.5 times (1.7 without background correction) the total bromide added to all zones (2.3 times the mass amended to the upper and middle zones), indicating that part of the difference is likely attributable to under-recovery of iodide.

For the lower zone (RW0008) it is estimated that 3.1 kg of bromide were recovered, which is 1.1 times the target bromide mass injected into the lower zone (2.7 kg). The ratio need not be the same as in the upper zone, since the actual pore volume of the sweep zones is not known for certain. However, as an experiment, if 40% of the bromide mass targeted to the lower zone is assigned to the upper zone, along with the mass targeted to the silty clay, then the ratio of recovered bromide mass to injected becomes 1.9 for both sweep zones.

Another way to look at the tracer recovery results is to look at when the cumulative mass extracted line crosses the mass added lines in Figure E-4-2 (Attachment E-4). For RW0007, the bromide mass extracted crosses the upper zone mass at about 60 kgal, and the bromide mass for the upper plus silt zones at about 80 kgal. In contrast, the iodide mass extracted line crosses the iodide mass added line at about 190 kgal. It appears that iodide may not have been conservative in the upper test plot.

Average tracer concentrations at the end of the Main Recirculation Phase can be used to estimate how much groundwater has been recirculated relative to the pore volume. This assumes concentrations at the extraction wells are representative of the average concentration throughout the pore volume. Using the mass of bromide injected to the upper zone (3.9 kg) and an average concentration of 7.9 mg/L, it is estimated that the bromide is distributed in a volume of 129.8 kgal. The total extracted volume in the upper zone at this point in operation was 243.4 kgal, which is a factor of 1.9 times greater. Hence, a rough estimate of the number of sweep zone pore volume replacements is 1.9, which is in agreement with the estimate based on area and depth (refer to Section C.4.1.1 in Appendix C). Note that if more bromide mass was actually delivered to the upper zone, then the calculated volume it is distributed throughout would be larger, and the estimated pore volume equivalents would be lower. Using iodide to make the same estimate, the estimated volume in which it is distributed is 316.2 kgal, which is much greater than that estimated using bromide, and yields only 0.77 pore volume equivalents. In the lower zone, the same approach (2.7 kg of bromide, average corrected bromide concentration of 2.8 mg/L) yields a distributed volume of 258.0 kgal, compared to the extracted volume of 221.6 kgal, which yields a ratio of 0.86 pore volume equivalents. The estimated volume containing tracer would be lower if the mass delivered to the lower zone was actually less than target, which would increase the estimated number of pore volume equivalents.

E.6.4 FIELD PARAMETERS

Table E-1-9 in Attachment E-1 to this Appendix presents the field parameter measurement results including pH, ORP, DO, specific conductivity, temperature, turbidity and total dissolved solids, which were measured and monitored for stability during groundwater sample collection to verify proper sampling techniques were followed and that samples were representative. Additionally, parameters such as pH, DO and ORP were used to characterize the prevailing geochemical conditions.

The pH was generally about 7.5, varying somewhat spatially and temporally, but without apparent trends. Average pH in the upper and lower zones was essentially the same. The average pH in the plot appeared to decline slightly at the Month 3 event, but then rose back again. The pH at extraction well RW0007 declined from around 7.5 to as low as 6.75 following nBA addition, gradually increasing again over the period of operation. Similarly, the pH at extraction well RW0008 declined to about 7.0 shortly after recirculation restarted, then gradually rose over the course of operation. Temporary decline in pH is consistent with fermentation of the amended PED.

The ORP was initially negative (average -169 mV in the upper zone and -146 mV in the lower zone), indicating reducing conditions existed prior to PED addition. Following PED injection, at Month 3, the average ORP dropped to -253 mV and -260 mV in the upper and lower zones, respectively. The upper zone ORP averaged -250 mV, -206 mV and -114 mV at Month 7, Month 10 and Month 13, respectively, indicating that the conditions became less reducing during

the Interim Measure Recirculation Phase. The lower zone ORP averaged -264 mV, -265 mV and -248 mV at Month 7, Month 10 and Month 13, respectively, indicating that reducing conditions below the silty clay were maintained throughout the Interim Measure Recirculation Phase.

DO levels were fairly similar throughout the DEM/VAL. The average concentrations were 0.38 mg/L and 0.27 mg/L in the upper and lower zones, respectively, at the end of the Baseline Flux Assessment Phase. The concentrations were similar throughout, until the final sampling event at the end of Month 13 when average DO concentrations were about 1.0 mg/L in both zones.

E.6.5 GEOCHEMICAL INDICATOR PARAMETERS

Table E-1-6 in Attachment E-1 to this Appendix presents the groundwater concentration data for alkalinity and selected anions (chloride, nitrate, nitrite, sulfate and sulfide) that were monitored to support the assessment of geochemical conditions. This table also contains data for the DHGs, including methane, ethane and ethene, as well as the tracer data for comparison. The methane and ethane data, as well as the sulfate and sulfide data for each monitoring location are plotted in the 'd' series of figures in Attachment E-2. Ethene is plotted with the chlorinated ethenes in the 'a' series of figures in Attachment E-2. Nitrate and nitrite were not detected in any of the samples collected.

Chloride is produced during reductive dechlorination reactions; hence increases in chloride concentration might indicate that biodegradation was occurring. However, the baseline chloride concentrations varied considerably with depth in the upper aquifer, and spatially at a given depth. For example, the chloride profile with depth can be assessed at the BW0001 location. At the end of the Baseline Flux Assessment, the chloride concentration in the upper zone increased with depth, from 84 mg/L in the upper interval (BW0001A), to 258 mg/L in the intermediate interval (BW0001B) and to 570 mg/L at the base of the upper aquifer (BW0001C). Even at a given depth, the chloride concentration was quite variable, with values of 570, 687 and 490 mg/L in the 37-40 ft interval (the BW000xC locations) and 642 mg/L at RW0007. Considering this amount of variability, it is not surprising that chloride production could not be confirmed with the data collected. It is noted that the chloride concentration at RW0007 showed a fairly steady decrease over the course of operation, from about 650 mg/L initially to about 400 mg/L at the end of recirculation. This is likely the result of gradual mixing of lower-chloride water from the upper aquifer with water from the base of the upper zone. Indeed, the average chloride concentration in the upper zone was 388 mg/L at the end of the Baseline Flux Phase (April 2011), decreased to 265 mg/L in Month 3 (October 2011), and decreased again, to 157 mg/L in Month 7 (February 2012). Chloride concentrations in the lower zone, including at RW0008, remained relatively constant over the course of the DEM/VAL, with average concentrations of 635, 644 and 604 mg/L at Baseline, Month 3 and Month 7, respectively.

Sulfate concentrations also varied, though not as much as the chloride. At the end of the Baseline Flux Assessment Phase (April 2011), the average sulfate concentration in the upper zone was 43 mg/L compared to 101 mg/L in the lower zone. At Month 3, the average sulfate concentrations had decreased, to 18 mg/L and 44 mg/L in the upper and lower zones, respectively. At Month 7, the average sulfate concentration in the upper zone increased somewhat, to 33 mg/L, while in the lower zone it further declined to 18 mg/L. The decreases in sulfate concentrations were more pronounced at the extraction wells. At RW0007 the sulfate concentration got as low as non-detect during the first three months of operation and then averaged about 3 mg/L for the next four months. At RW0008, sulfate was completely removed at the end of the Biomass Growth Phase (August 2011), rebounded slightly when recirculation re-started and then steadily decreased over the seven months of the Main Recirculation Phase. The decreases in sulfate concentrations were accompanied by increases in those of sulfide. The average concentrations of sulfide increased from non-detect levels initially, to 8 mg/L in both the upper and lower zones in Month 3, to 6 mg/L and 11 mg/L in the upper and lower zones, respectively in Month 7. These trends indicate that the reducing conditions created by the addition of the PED stimulated indigenous sulfate reducing bacteria. Reduction of sulfate to sulfide consumes electron donor but helps to establish suitable redox conditions for the reductive dechlorination process.

Alkalinity increased as a result of PED addition. Baseline alkalinity was 280 mg/L as $CaCO_3$ in the upper zone and 170 mg/L as $CaCO_3$ in the lower zone. At Month 3, the average alkalinity had increased to 500 mg/L in the upper zone and 250 mg/L in the lower zone. At Month 7, the average alkalinity was 360 mg/L and 270 mg/L in the upper and lower zones, respectively. Increased alkalinity is an indicator of microbial activity, since consumption of the applied PED results in production of bicarbonate.

Ethene was present in the groundwater in the upper zone at baseline, at an average concentration of 65 µg/L at the end of the Baseline Flux Assessment Phase (April 2011). However, no ethene was detected in the lower zone or middle silty clay unit. Following PED addition, ethene concentrations in both zones increased as it was produced by the dechlorination reactions. In the upper zone, the average ethene concentration increased over the first ten months of operation, first to 110 µg/L, then 140 µg/L and then 340 µg/L at the Month 3, Month 7 and Month 10 synoptic events, respectively. The average ethene concentration declined somewhat in the last quarter (Month 13), to 220 µg/L. In the lower zone, ethene concentrations also increased significantly over the course of system operation. Here the average concentrations were 50 µg/L, 230 µg/L, 520 µg/L and 570 µg/L for the Month 3, Month 7, Month 10 and Month 13 events, respectively. Ethene production confirmed that complete dechlorination of the parent VOCs (TCE, cDCE) through VC was occurring. Conversion to ethene contributes to the increased flux of VOCs, as can be seen in Figures 20a and 20b (main document) and Attachment E-3.

Ethane was not detected anywhere within the DEM/VAL plots initially, at the end of the Baseline Flux Assessment Phase (April 2011). Following PED addition, ethane was detected at many locations. At Month 3, the average ethane concentration in the upper zone was 25 µg/L, while in the lower zone it was 5 µg/L. The measured concentrations ranged from non-detect to 110 µg/L. This range and average concentration remained similar throughout the course of operation. Ethane is produced by the reduction of ethene, which is produced from dechlorination of TCE, cDCE and VC.

Methane was present in the groundwater from the beginning of the DEM/VAL, in the upper zone more so than the lower, with average baseline concentrations (end of Baseline Flux Assessment Phase) of 80 µg/L and 7 µg/L, respectively. Methane concentrations increased significantly over the course of system operation. In the upper zone, the average methane concentration increased over the first ten months of operation, first to 180 µg/L, then 290 µg/L and then 490 µg/L at the Month 3, Month 7 and Month 10 synoptic events, respectively. The average methane concentration declined somewhat in the last quarter (Month 13), to 280 µg/L. In the lower zone, methane concentrations also increased significantly over the course of system operation. Here the average concentrations were 390 µg/L, 330 µg/L, 830 µg/L and 1070 µg/L for the Month 3, Month 7, Month 10 and Month 13 events, respectively. The highest observed value was 5,800 µg/L, at IW0002D1 at the end of the shut-in period (Biomass Growth Phase). Methane production results from methanogens utilizing the reducing equivalents supplied by the electron donor, likely through acetate fermentation. These microorganisms produce methane as a metabolic product under anoxic conditions, generally after sulfate has been depleted. The methane concentrations suggest that suitably reducing conditions were maintained throughout the DEM/VAL.

E.6.6 METALS

Table E-1-8 in Attachment E-1 to this Appendix presents concentration data for dissolved Arsenic, Iron and Manganese over the course of the DEM/VAL. These species are known to be redox sensitive and are more mobile in their reduced forms. Concentrations were monitored to assess whether the reducing conditions created by PED addition had any effect on these species. Dissolved Arsenic was not detected. Dissolved Iron was observed at relatively low concentrations at a number of locations, although it was not detected in extracted groundwater from either zone after Week 8 (28 September 2011). Concentrations were generally at their highest at the end of the Biomass Growth Phase (01 August 2011), when conditions were likely most conducive to localized dissolution from aquifer solids, since it was one month after PED addition and prior to restarting groundwater recirculation. Dissolved Manganese was observed in most samples at low concentrations of 20 to 30 µg/L, which is below the FDEP GCTL of 50 µg/L. Manganese concentrations also generally showed peak values at the end of the Biomass Growth Phase and then returned to background levels.

E.6.7 MOLECULAR CHARACTERIZATION

Groundwater samples were analyzed for specific microbial genes linked to reductive dechlorination of chlorinated ethenes. The results are presented in Table E-1-10 in Attachment E-1 to this Appendix. Groundwater samples were analyzed via quantitative polymerase chain reaction (qPCR) analysis using the 16S rRNA gene (via the Gene-Trac-Dhc analysis offered by SiREM Laboratory [SiREM]). This analysis determined the presence and abundance of *Dhc* organisms, microbes that are capable of reductive dechlorination of chlorinated ethenes. A separate assay (SiREM's Gene-Trac-VC assay) using the qPCR method was used to quantify the *Dhc vcr*A gene, the gene that codes for vinyl chloride reductase, the enzyme responsible for dechlorination of cis-1,2-dichloroethene and vinyl chloride to ethene. Gene-Trac-VC characterizes the dechlorination capabilities of the detected *Dhc* organisms.

Six locations were monitored over the course of the DEM/VAL, three in the upper sweep zone (BW0001C, BW0003C and RW0007) and three in the lower sweep zone (BW0001E, BW0003E and RW0008). Initially, *Dhc* analyses were performed at all six locations, and *vcr*A was done only at the extraction wells (samples were archived for the other locations). Subsequently, during the Interim Measure Recirculation, the *vcr*A analysis was performed at all six locations.

The baseline samples collected at the end of the Baseline Flux Assessment (April 2011) confirmed that TCE-dechlorinating bacteria are native to the site; however, the number of *Dhc* organisms was relatively low. In the upper zone, the geometric mean of 1.5E+06 gene copies/L suggested that microbial numbers were below the threshold level of 1.0E+07 gene copies/L necessary to support 'generally useful' rates of dechlorination. In the lower zone, the numbers were considerably lower, with a geometric mean estimated to be 3.9E+03 gene copies/L (using half the detection limit where not detected).

The Month 3 samples (October 2011) showed significant increases in *Dhc* numbers, to geometric mean values of 6.7E+07 gene copies/L in the upper zone and 1.6E+07 gene copies/L in the lower zone, increases of 44 and 4,100 times, respectively in response to PED addition. These *Dhc* numbers suggest that useful rates of dechlorination might be supported. Some locations (BW0001C, BW0001E and BW0003E) had not quite reached the threshold level; BW0003C never did reach it, despite a significant increase over baseline. The mean results for Month 7, Month 10 and Month 13 numbers were similar to Month 3 for both the upper and lower sweep zones, indicating that the microbial population was sustained by the electron donors available with the plots.

The *vcr*A results confirm that the detected *Dhc* was capable of degrading vinyl chloride to ethene efficiently. The data from the extraction wells indicates that initially the *vcr*A component made up only about 5% of the *Dhc*, but that over the course of operation the proportion of *Dhc* that contained the *vcr*A component grew to be essentially 100%. This suggests that by Month 10 the

entire *Dhc* microbial population had the capability of degrading vinyl chloride to ethene efficiently.

E.7 ATTACHMENTS

Attachment E-1 Data Tables

Attachment E-2 Time-Trend Plots of Data by Well

Attachment E-3 Distribution of VOCs by Well (Stacked Bar Charts)

Attachment E-4 Data Analysis

Attachment E-5 Data using Molar Basis

Attachment E-6 Treatment Zone VOC Mass Estimates

ATTACHMENT E-1

DATA SUMMARY TABLES

Table E-1-1	Summary of Soil Sampling Results: Volatile Organic Compounds
Table E-1-2	Summary of Soil Sampling Results: Baseline Organic Carbon Content
Table E-1-3	Summary of PED Injectate Batch QC Sampling Results
Table E-1-4	Summary of PED Injection Confirmation Grab Groundwater Sampling Results - PED, VOCs and Tracers
Table E-1-5	Summary of Groundwater Sampling Results: Volatile Organic Compounds
Table E-1-6	Summary of Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers
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Table E-1-8	Summary of Groundwater Sampling Results: Dissolved Metals
Table E-1-9	Summary of Groundwater Sampling Results: Field Geochemical Parameters
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Table E-1-1. Summary of Soil Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Event	Location	Sample Date	Sample Depth (ft BLS)	Trichloroethene (mg/kg)*	cis-1,2-Dichloroethene (mg/kg)*	trans-1,2-Dichloroethene (mg/kg)*	Vinyl Chloride (mg/kg)*	n-Butyl Acetate (mg/kg)*	n-Butanol (mg/kg)*
Baseline	LC34-SB1001	01/19/2011	24.0	**0.02**	**1.4 L**	**0.03**	**0.05**	0.05 U	NA
			35.5	**3.2**	**2.0**	0.10 U	0.10 U	0.50 U	NA
			41.0	**2.6**	**4.2**	0.10 U	0.10 U	0.50 U	NA
			44.5	**5.7**	**1.4**	0.10 U	0.10 U	0.50 U	NA
	LC34-SB1002	01/19/2011	44.5	0.01 U	**0.06**	0.01 U	0.01 U	0.05 U	NA
			46.5	**0.03**	**0.55**	0.01 U	0.01 U	0.05 U	NA
			49.5	0.01 U	**0.02**	0.01 U	0.01 U	0.05 U	NA
			55.0	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	NA
	LC34-SB1003	01/19/2011	37.5	**3.7**	**7.0**	0.10 U	0.10 U	0.50 U	NA
			43.0	**7.3**	**0.36 I**	0.50 U	0.50 U	2.5 U	NA
			44.0	**22**	**0.76**	0.50 U	0.50 U	2.5 U	NA
			46.0	**6.8**	**1.1**	0.10 U	0.10 U	0.50 U	NA
			49.5	**7.2**	**2.0**	0.10 U	0.10 U	0.50 U	NA
	LC34-SB1004	01/19/2011	34.5	**0.77**	**2.0**	**0.10**	**0.05 I**	0.50 U	NA
			37.0	0.50 U	**15**	0.50 U	**0.22 I**	2.5 U	NA
			43.0	**3.4**	**0.98**	0.10 U	0.10 U	0.50 U	NA
			45.0	**5.4**	**3.8**	0.10 U	0.10 U	0.50 U	NA
			46.5	**0.35**	**2.0**	0.10 U	0.10 U	0.50 U	NA
			50.0	0.01 U	**0.02**	0.01 U	0.01 U	0.05 U	NA
Post Biomass Growth	LC34-DPT0332	08/03/2011	37.0	**15**	**6.8**	**0.055 I**	**0.160 I**	**8.3**	**100**
			43.5	**70**	**4.5**	0.11 U	0.13 U	**38**	**36 I**
			45.0	**3.4**	**1.8**	0.04 U	0.048 U	**7.7**	**9.6 I**
			48.0	**1.8**	**1.5**	0.037 U	0.046 U	**1.1**	2.5 U
			53.0	**0.0098**	**0.0042 I**	0.00042 U	0.00052 U	**0.0047 I**	0.013 U
	LC34-DPT0333	08/03/2011	37.0	**46**	**6.5**	**0.083 I**	0.075 U	**24**	**33 I**
			44.0	**65**	**1.1 I**	0.24 U	0.29 U	**6.4**	7.2 U
			45.5	**64**	**3.3**	**0.064 I**	0.062 U	**4.9**	**11 I**
			47.0	**37**	**2**	0.049 U	0.059 U	**0.29 I**	**16 I**
			48.5	**5.7 L**	**0.73 L**	**0.0042 I**	**0.0015 I**	**0.16**	**14 L**
			53.0	**0.0095**	**0.002 I**	0.00044 U	0.00054 U	**0.00087 I**	0.014 U
	LC34-DPT0334	08/03/2011	34.5	**4.8**	**2.7**	**0.05 I**	0.033 U	**0.490 I**	**3.7 I**
			37.0	**6.8**	**7.1**	**0.042 I**	**0.3 I**	**0.057 I**	**64**
			45.5	**5.7 L**	**4.0 L**	**0.078**	**0.0028 I**	**1.7 L**	**5.7**
			47.0	**31**	**5.7**	**0.093 I**	0.065 U	**0.056 I**	3.6 U
			48.5	**5.3**	**1.4**	0.034 U	0.041 U	0.03 U	2.3 U
			53.0	**0.006 I**	**0.003**	0.00032 U	0.00039 U	**7.0**	**0.40**

Table E-1-1. Summary of Soil Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Event	Location	Sample Date	Sample Depth (ft BLS)	Trichloroethene (mg/kg)*	cis-1,2-Dichloroethene (mg/kg)*	trans-1,2-Dichloroethene (mg/kg)*	Vinyl Chloride (mg/kg)*	n-Butyl Acetate (mg/kg)*	n-Butanol (mg/kg)*
End of Main Recirculation Phase (Month 7)	LC34-DPT0346	02/13/2012	37.0	**0.620 I**	**6.1**	**0.099 I**	**1.7**	0.032 U	2.5 U
			40.0	**0.420 I**	**14**	**0.34 I**	**0.67 I**	0.071 U	5.5 U
			43.5	**4.9**	**6.3**	**0.053 I**	**1.6**	0.038 U	3 U
			45.0	**4.3**	**6.2**	0.071 U	**1.7**	0.0062 U	4.8 U
			46.5	**0.0024 I**	**0.0075**	**0.00089 I**	**0.0065**	**0.00087 I**	0.012 U
			48.0	**8**	**23**	**0.13 I**	**0.11 I**	0.043 U	3.3 U
			53.0	0.00063 U	**0.00059 I**	**0.00077 I**	**0.0098**	0.00056 U	0.015 U
			55.0	0.0005 U	**0.001 I**	**0.0006 I**	**0.0033 I**	0.00044 U	0.012 U
	LC34-DPT0347	02/13/2012	37.0	**4.4**	**0.84**	0.034 U	**0.85**	0.029 U	2.3 U
			40.0	**2.6**	**0.68**	0.030 U	**0.69**	0.026 U	2 U
			45.5	**0.17**	**0.13**	**0.0023 I**	**0.022**	**0.0011 I**	0.013 U
			47.0	**73**	**7.5**	0.12 U	**0.17 I**	0.11 U	7.8 U
			50.0	**69**	**3.6 I**	0.17 U	0.21 U	0.15 U	12 U
			50.5	**0.0016 I**	**0.0017 I**	0.00042 U	**0.013**	0.00049 U	0.013 U
			53.0	**0.0016 I**	**0.0014 I**	**0.00052 I**	**0.012**	0.00047 U	0.012 U
	LC34-DPT0348	02/13/2012	34.5	**0.062 I**	**5.8**	**0.12 I**	**0.29 I**	0.026 U	2 U
			37.0	**0.030 I**	**0.26 I**	**0.052 I**	**3.7**	0.023 U	1.8 U
			40.0	**0.670 I**	**2.5**	0.033 U	**0.9**	0.028 U	2.2 U
			45.4‡	**0.19**	**0.031**	0.00062 U	**0.00091 I**	**0.0025 I**	**0.026 I**
			45.5‡	**0.160 I**	**0.56 I**	0.056 U	**0.59 I**	0.067 U	1.7 U
			45.6‡	**3.4 L**	**1.3 L**	**0.014**	**0.39 L**	**0.0011 I**	0.014 U
			47.0	**41**	**23**	**0.27 I**	0.14 U	0.098 U	7.6 U
			48.5	**75**	**27**	**0.24 I**	0.093 U	0.067 U	5.2 U
			53.0	**0.001 I**	**0.0039 I**	0.00041 U	**0.0032 I**	**0.00071 I**	0.013 U

Table E-1-1. Summary of Soil Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Event	Location	Sample Date	Sample Depth (ft BLS)	Trichloroethene (mg/kg)*	cis-1,2-Dichloroethene (mg/kg)*	trans-1,2-Dichloroethene (mg/kg)*	Vinyl Chloride (mg/kg)*	n-Butyl Acetate (mg/kg)*	n-Butanol (mg/kg)*
End of Interim Measure Recirculation Phase (Month 13)	LC34-DPT0349	09/10/2012	37.0	**2.9**	**7.2**	**0.16 I**	**1.7**	0.047 U	11 U
			40.0	**0.11 I**	**0.67 I**	0.057 U	**0.73 I**	0.035 U	7.5 U
			43.5	**1.5**	**1.2**	0.042 U	**1.3**	0.026 U	5.5 U
			45.0	**1.5**	**3.7**	**0.074 I**	**2.1**	0.029 U	6.3 U
			46.5	**30**	**11**	0.09 U	**0.2 I**	0.055 U	12 U
			47.0	**10**	**14**	**0.061 I**	**0.17 I**	0.029 U	6.2 U
			48.0	**0.59 I**	**19**	**0.092 I**	**0.19 I**	0.029 U	6.2 U
			53.0	**0.0018 I**	**0.0025 I**	**0.0016 I**	**0.067**	0.00091 U	0.058 U
	LC34-DPT0350	09/10/2012	37.0	**5.0**	**4.2**	**0.11 I**	**2.1**	0.026 U	5.5 U
			40.0	**1.1**	**0.7**	0.047 U	**0.96**	0.028 U	6.1 U
			44.0	**4.8**	**3.3**	**0.07 I**	**2.2**	0.033 U	7.1 U
			45.5	**75**	**2.7**	0.17 U	0.14 U	0.11 U	22 U
			47.0	**48**	**5.1**	0.11 U	0.092 U	0.066 U	15 U
			48.5	**38**	**4.7**	0.12 U	0.094 U	0.067 U	15 U
			53.0	**0.0049 I**	**0.0072**	0.00095 U	**0.011**	0.00091 U	0.058 U
	LC34-DPT0351	09/10/2012	34.5	0.021 U	**0.9**	0.04 U	**0.05 I**	0.024 U	5.2 U
			37.0	**0.01**	**0.03**	**0.03**	**0.65**	0.00067 U	0.043 U
			40.0	**0.01**	**0.1**	**0.043**	**0.033**	0.00085 U	0.054 U
			45.5	**6.4**	**8.9**	**0.061 I**	**1.2**	0.03 U	6.4 U
			47.0	**0.12 I**	**21**	**0.094 I**	**0.61 I**	0.049 U	11 U
			48.5	**0.13 I**	**17**	**0.079 I**	**1.3**	0.04 U	8.6 U
			53.0	0.0009 U	**0.0015**	0.00077 U	**0.0027 I**	**0.00078 I**	0.047 U

Notes:

1. ft BLS indicates feet below land surface.
2. mg/kg indicates milligrams per kilogram.
3. U indicates result not detected above method detection limit (MDL).
4. I indicates the result is between the MDL and the practical quantitation limit.
5. L indicates concentation exceeded upper limit of calibration range, estimated value.
6. NA indicates not analyzed.
7. **Bold** indicates the result was detected above method detection limit (MDL).
8. Results not displayed to a set number of significant digits.

[ǂ] The results from analysis of three sample aliquots are reported using slightly different sample depths for the same sample.

[*] Baseline sample data is from a mobile laboratory and is reported on a wet weight basis. All other data is from a fixed laboratory and is reported on a dry weight basis.

Table E-1-2. Summary of Soil Sampling Results: Baseline Organic Carbon Content
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Sample Depth (ft BLS)	Total Organic Carbon (mg/kg)	Fraction Organic Carbon
LC34-SB1002	01/19/2011	28	**1,110**	**0.00111**
LC34-SB1002	01/19/2011	34	**990**	**0.00099**
LC34-SB1002	01/19/2011	47	**2,630**	**0.00263**
LC34-SB1002	01/19/2011	53	**860**	**0.00086**
LC34-SB1003	01/19/2011	28	**1,410**	**0.00141**
LC34-SB1003	01/19/2011	34	**440**	**0.00044**
LC34-SB1003	01/19/2011	47	**3,070**	**0.00307**
LC34-SB1003	01/19/2011	53	**650**	**0.00065**

Notes:

1. ft BLS indicates feet below land surface.
2. mg/kg indicates milligram per kilogram.
3. **Bold** indicates the result was detected above method detection limit (MDL).
4. Results not displayed to a set number of significant digits.

Table E-1-3. Summary of PED Injectate Batch QC Sampling Results
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Bromide (mg/L)	Iodide (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	Concentration Ratios		
						nBA/Br	nBA/I	Br/I
BATCH 10	06/21/2011	**65**	NA	**2,500,000**	210,000 U	38	--	--
BATCH 17	06/21/2011	**111**	**70**	**1,900,000**	110,000 U	17	27	1.6
BATCH 26	06/21/2011	**109**	**150**	**2,200,000**	210,000 U	20	15	0.7
BATCH 29	06/22/2011	**71**	NA	**2,500,000**	210,000 U	35	--	--
BATCH 39	06/22/2011	**88**	NA	**7,700,000**	530,000 U	87	--	--
BATCH 40	06/22/2011	**86**	**115**	**4,700,000**	270,000 U	54	41	0.8
BATCH 49	06/22/2011	**72**	**146**	**6,600,000**	530,000 U	91	45	0.5
BATCH 54	06/23/2011	**65**	NA	**3,400,000**	270,000 U	52	--	--
BATCH 57	06/23/2011	**65**	NA	**2,400,000**	210,000 U	37	--	--
BATCH 67	06/23/2011	**71**	**102**	**1,700,000**	500,000 U	24	17	0.7
BATCH 112	06/27/2011	**76**	**100**	**3,800,000**	270,000 U	50	38	0.8
BATCH 117	06/27/2011	**69**	**145**	**1,800,000**	110,000 U	26	12	0.5
BATCH 127	06/27/2011	**68**	NA	**1,100,000**	110,000 U	16	--	--
BATCH 134	06/27/2011	**69**	NA	**2,300,000**	210,000 U	34	--	--
BATCH 136	06/28/2011	**63**	**105**	**2,500,000**	110,000 U	39	24	0.6
BATCH 144	06/28/2011	**17**	**27**	**1,800,000**	110,000 U	107	67	0.6
BATCH 152	06/28/2011	**64**	NA	**2,100,000**	210,000 U	33	--	--
Targets		60	140	3,000,000	0	50	21.4	0.43
Upper Zone Batches (Br & I)	average	75	107	3,000,000	--	48	32	0.75
	std dev	28	40	1,701,470	--	32	18	0.33
Lower Zone Batches (Br)	average	69	--	3,000,000	--	42	--	--
	std dev	8	--	2,000,714	--	21	--	--
Overall	average	72	--	3,000,000	--	45	--	--
	std dev	21	--	1,788,505	--	27	--	--

Notes:

1. mg/L indicates milligrams per liter.
2. µg/L indicates micrograms per liter.
3. nBA/Br is the ratio of n-Butyl Acetate to Bromide
4. nBA/I is the ratio of n-Butyl Acetate to Iodide
5. Br/I is the ratio of Bromide to Iodide
6. U indicates result not detected above method detection limit (MDL).
7. NA indicates not analyzed.
8. -- indicates not applicable
9. **Bold** indicates the result was detected above method detection limit (MDL).
10. Results not displayed to a set number of significant digits.

Table E-1-4. Summary of PED Injection Confirmation Grab Groundwater Sampling Results - PED, VOCs and Tracers
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Sample interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)	Bromide (mg/L)	Iodide (mg/L)
LC34-DPT0328	06/30/2011	28 to 32	**4,100**	**45,000**	**500 I**	240 U,I	**1,500 J**	NA	1,000 U	NA	NA
	06/30/2011*		**3,800**	**48,000**	**440 I**	**250 I**	110 U	25,000 U	160 U	0.30 U	0.20 U
	06/30/2011	37 to 41	**1,400**	**52,000**	**330 I**	**1,600**	**19,000**	NA	1,000 U	NA	NA
	06/30/2011*		**1,200 I**	**56,000**	**260 I**	**2,000 I**	**15,000**	25,000 U	160 U	**2.0**	0.20 U
	06/30/2011	43 to 47	**2,100**	**34,000**	**210 I**	120 U,I	**640 J**	NA	500 U	NA	NA
	06/30/2011*		**1,900**	**35,000**	**190 I**	58 U	**55 I**	13,000 U	78 U	**1.9**	0.20 U
	06/30/2011	49 to 53	**4.5 I**	**250**	10 U	**4.4 I**	**26 J**	NA	10 U	NA	NA
	06/30/2011*		NA	NA	NA	NA	NA	NA	NA	**1.8**	0.20 U
	06/30/2011	55 to 59	**1.3**	**64.8**	1.0 U	1.0 U	**440**	NA	1.0 U	NA	NA
	6/30/2011*		NA	NA	NA	NA	NA	NA	NA	**1.9**	0.20 U
LC34-DPT0329	06/30/2011	28 to 32	2,900 U,I	**4,800 I**	10,000 U	2,400 U,I	**1,300,000**	NA	**18,000**	NA	NA
	06/30/2011	37 to 41	**11,000**	**11,000**	1,000 U	240 U,I	**1,200,000**	NA	**1,400**	NA	NA
	06/30/2011*		**10,000 I**	**14,000 I**	2,000 U	2,300 U	**1,100,000**	500,000 U	3,100 U	**50**	**25**
	06/30/2011	43 to 47	**34,000**	**4,900**	2,000 U	480 U,I	**1,300,000**	NA	**5,000**	NA	NA
	06/30/2011*		NA	NA	NA	NA	NA	NA	NA	**46**	0.20 U
	06/30/2011	49 to 53	**9,000**	5,000 U	5,000 U	1,200 U,I	**1,700,000**	NA	**4,100 I**	NA	NA
LC34-DPT0330	06/30/2011	8 to 12	**3.8 I**	**230**	**7.0**	**12**	**1,600**	NA	5.0 U	NA	NA
	06/30/2011	28 to 32	**1,700**	**38,000**	**510**	**240 I**	**19,000**	NA	500 U	NA	NA
	06/30/2011	37 to 41	**640**	**50,000**	**290 I**	**2,300**	**20,000**	NA	500 U	NA	NA
	06/30/2011*		**530 I**	**59,000**	**340 I**	**2,500**	**15,000**	25,000 U	160 U	**2.5**	0.20 U
	06/30/2011	43 to 47	**3,800**	**20,000**	2,000 U	480 U,I	**860,000**	NA	2,000 U	NA	NA
	06/30/2011*		**3,500**	**20,000**	**130 I**	120 U	**690,000**	**75,000**	160 U	**28**	0.20 U
	06/30/2011	49 to 53	58 U,I	**1,200**	200 U	48 U,I	**97,000**	NA	200 U	NA	NA
	06/30/2011*		58 U	**510 I**	50 U	58 U	**76,000**	**19,000**	78 U	**4.2**	0.20 U
LC34-DPT0331	06/30/2011	14 to 18	58 U,I	**14,000**	**390**	**1,000**	**1,700**	NA	**18,000**	NA	NA
	6/30/2011*		NA	NA	NA	NA	NA	NA	NA	0.30 U	NA
	06/30/2011	28 to 32	**24,000**	**15,000**	2,000 U	**960 I**	**24,000**	NA	**180,000**	NA	NA
	6/30/2011*		NA	NA	NA	NA	NA	NA	NA	**1.8**	**2.8**
	06/30/2011	37 to 41	**72,000**	**20,000**	1,000 U	240 U,I	**490,000**	NA	**44,000**	NA	NA
	06/30/2011*		**76,000**	**20,000**	500 U	580 U	**360,000**	27,000 U	**50,000**	**6.2**	**3.6**
	06/30/2011	43 to 47	**190,000**	**4,700**	2,000 U	480 U,I	**55,000**	NA	**68,000**	NA	NA
	06/30/2011*		**180,000**	**3,700 I**	200 U	230 U	**820 I**	50,000 U	**56,000**	**1.7**	0.20 U

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. * indicates duplicate sample.
4. For primary samples U indicates result not detected above practical quantitation limit (PQL), for duplicate samples U indicates result not detected above method detection limit (MDL).
5. I indicates the result is between the MDL and the practical quantitation limit (PQL).
6. J indicates an estimated value; for primary samples, n-Butyl Acetate values below PQL are qualifed with J.
7. NA indicates not analyzed.
8. **Bold** indicates the result was detected above method detection limit (MDL).
9. Results not displayed to a set number of significant digits.
10. Primary sample results from mobile lab (KB Labs); not certified for n-Butyl Acetate and 1,1,2-Trichlorotrifluoroethane, data should be considered screening level.

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-BW0001A	02/01/2011	23 to 26	**300 I**	**31,000**	**640**	**4,700**	30 U	670 U	**120,000**
	04/18/2011		150 U	**39,000**	**830 I**	**2,200 I**	150 U	3,400 U	**65,000**
	08/01/2011		**300 I**	**36,000**	**690 I**	**4,000**	**340 I**	5,300 U	**87,000 J**
	08/01/2011*		**470 I**	**39,000**	**680 I**	**5,200**	**670 I**	**49,000 I**	**120,000 J**
	10/25/2011		**130 I**	**45,000**	**1,100 I**	**2,400**	53 U	2,700 U	**59,000**
	02/16/2012		120 U	**11,000**	**290 I**	**840 I**	110 U	5,300 U	**93,000**
	06/26/2012		120 U	**6,200**	**220 I**	**770 I**	110 U	5,300 U	**50,000**
	09/13/2012		500 U	**1,700**	**60 I**	**200 I**	39 U	1,800 U	**20,000**
LC34-BW0001B	02/01/2011	30 to 33	**27,000**	**6,600**	**150 I**	**160 I**	60 U	1,400 U	**130,000**
	04/18/2011		**14,000**	**28,000**	**470 I**	**1,800 I**	300 U	6,700 U	**150,000**
	08/01/2011		**19,000**	**14,000**	**270 I**	**600 I**	**1,000 I**	11,000 U	**140,000**
	10/25/2011		**3,200**	**12,000**	**260 I**	**1,100 I**	**56,000**	**1,400,000**	**68,000**
	02/16/2012		**1,400 I**	**38,000**	**920 I**	**2,200 I**	210 U	11,000 U	**150,000**
	06/26/2012		**720 I**	**28,000**	**750 I**	**1,500 I**	210 U	11,000 U	**160,000**
	09/13/2012		**350 I**	**19,000**	**510 I**	**1,100 I**	98 U	4,400 U	**98,000**
LC34-BW0001C	02/01/2011	37 to 40	**53,000**	**47,000**	**280 I**	150 U	150 U	3,400 U	**1,600 I**
	03/22/2011		**48,000**	**28,000**	**240 I**	**420 I**	75 U	1,700 U	**26,000**
	03/29/2011		**48,000**	**26,000**	**290 I**	**380 I**	60 U	1,400 U	**60,000**
	04/07/2011		**54,000**	**29,000**	**280 I**	**570 I**	75 U	1,700 U	**55,000**
	04/18/2011		**45,000**	**25,000**	**260 I**	**630 I**	150 U	3,400 U	**59,000**
	07/07/2011		**52,000**	**21,000**	**270 I**	**510 I**	**420,000**	**320,000**	**19,000**
	08/01/2011		**27,000**	**31,000**	**210 I**	**480 I**	**95,000**	**280,000**	**14,000**
	10/25/2011		**12,000**	**22,000**	**270 I**	**1,300 I**	110 U	**200,000**	**98,000**
	02/16/2012		**1,400**	**26,000**	**390 I**	**3,700**	53 U	2,700 U	**45,000**
	06/26/2012		**370 I**	**22,000**	**460 I**	**3,800**	53 U	2,700 U	**67,000**
	09/13/2012		**130 I**	**20,000**	**420 I**	**1,900**	98 U	4,400 U	**47,000**
LC34-BW0001D	02/01/2011	44 to 47	**150,000**	**5,200**	150 U	150 U	150 U	3,400 U	**43,000**
	04/18/2011		**180,000**	**6,100**	300 U	300 U	300 U	6,700 U	**55,000**
	07/07/2011		**170,000**	**5,600**	200 U	230 U	**60,000**	**23,000 I**	**39,000**
	08/01/2011		**120,000 J**	**4,300 IJ**	200 U	230 U	**71,000**	**15,000 I**	**32,000**
	08/01/2011*		**170,000 J**	**5,900 J**	200 U	230 U	**84,000**	**22,000 I**	**39,000**
	10/25/2011		**150,000**	**3,000 I**	200 U	230 U	**270,000**	**310,000**	**63,000**
	02/16/2012		**110,000**	**5,100**	200 U	230 U	210 U	**36,000 I**	**69,000**
	06/26/2012		**64,000**	**7,400**	200 U	**990 I**	210 U	11,000 U	**140,000**
	09/13/2012		**43,000**	**12,000**	170 U	**990 I**	200 U	8,700 U	**83,000**

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-BW0001E	02/01/2011	51 to 54	**1,600**	**220**	3 U	3 U	3 U	67 U	4 U
	03/22/2011		**590**	**79**	1.5 U	1.5 U	1.5 U	34 U	2 U
	03/29/2011		**400**	**71**	0.75 U	**0.83 I**	0.75 U	17 U	**1.5 I**
	04/07/2011		**380**	**60**	0.75 U	0.75 U	0.75 U	17 U	**1 I**
	04/18/2011		**490**	**74**	0.6 U	**0.86 I**	0.6 U	14 U	**1.6 I**
	07/07/2011		**330**	**1,500**	**11 I**	4.7 U	**3,500**	**1,500 I**	6.2 U
	08/01/2011		**32 I**	**1,400**	**8.9 I**	**23 I**	**4.6 I**	**730 I,V**	**3.5 I**
	10/25/2011		**230**	**470**	**3.6 I**	**110**	1.1 U	53 U	**110**
	02/16/2012		**1.2 I**	**2.5 I**	**1 I**	**27**	0.21 U	11 U	**1.4 I**
	06/26/2012		**0.5 I**	**59**	**12**	**600**	0.21 U	11 U	**5.6**
	09/13/2012		**2.4 I**	**13**	**2.5 I**	**23**	0.98 U	44 U	**460**
LC34-BW0001F	02/01/2011	58 to 61	**3.5 I**	**0.79 I**	0.3 U	0.3 U	0.3 U	6.7 U	**0.79 I**
	04/18/2011		**1.1 I**	**0.41 I**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	08/01/2011		1,200 U	1,000 U	1,000 U	1,200 U	**900,000**	**620,000 I,V**	1,600 U
	10/25/2011		**1.1 I**	**0.34 I**	0.2 U	0.23 U	0.21 U	**150 I**	0.31 U
	02/16/2012		**5.1**	**53**	0.2 U	**81**	0.21 U	11 U	**3.3 I**
	06/26/2012		**1.2 I**	**0.99 I**	0.2 U	**13**	0.21 U	11 U	**0.31 I**
	09/13/2012		**1.4 I**	**0.50 I**	0.33 U	**3.8 I**	**0.4 I**	18 U	**0.71 I**
LC34-BW0002A	02/01/2011	23 to 26	**530 I**	**36,000**	**690 I**	**110 I**	60 U	1,400 U	**67,000**
	04/19/2011		**140 I**	**41,000**	**820 I**	**1,900**	75 U	1,700 U	**11,000**
	04/19/2011*		**140 I**	**38,000**	**790 I**	**1,800**	75 U	1,700 U	**9,800**
	08/02/2011		**300 I**	**32,000**	**610 I**	**820 I**	**150 I**	**11,000 I**	**23,000**
	10/26/2011		**31 I**	**13,000**	**330 I**	**850**	21 U	1,100 U	**1,100**
	02/15/2012		**51 I**	**46,000**	**380 I**	**7,800**	21 U	1,100 U	31 U
	06/26/2012		**4.7 I**	**260**	**34**	**410**	0.53 U	27 U	**210**
	09/11/2012		**5.6**	**49**	**13**	**130**	0.39 U	18 U	**60**
LC34-BW0002B	02/01/2011	30 to 33	**17,000**	**44,000**	**390 I**	**230 I**	75 U	1,700 U	**230 I**
	04/19/2011		**1,100 I**	**48,000**	**850 I**	**750 I**	75 U	1,700 U	**24,000**
	08/02/2011		**2,500**	**42,000**	**580 I**	**470 I**	**130 I**	2,700 U	**1,100 I**
	10/26/2011		**320 I**	**36,000**	**720 I**	**1,300**	53 U	2,700 U	**5,400**
	02/15/2012		**41 I**	**4,900**	**170**	**1,800**	5.3 U	270 U	**130**
	06/26/2012		**16 I**	**1,100**	**67**	**820**	2.1 U	110 U	**130**
	09/11/2012		**9.8 I**	**170**	**23**	**330**	0.98 U	44 U	**36**

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-BW0002C	02/01/2011	37 to 40	**620 I**	**87,000**	**510 I**	**700 I**	75 U	1,700 U	100 U
	03/22/2011		**2,900**	**66,000**	**430 I**	**2,500**	75 U	1,700 U	100 U
	03/29/2011		**5,300**	**75,000**	**460 I**	**2,300 I**	150 U	3,400 U	200 U
	04/07/2011		**3,000**	**79,000**	**450 I**	**2,300 I**	150 U	3,400 U	200 U
	04/19/2011		**1,800 I**	**74,000**	**490 I**	**2,100 I**	150 U	3,400 U	200 U
	07/07/2011		**2,000 I**	**51,000**	**360 I**	**2,200 I**	**490,000**	**120,000 I**	310 U
	08/02/2011		**380 I**	**43,000**	**280 I**	**6,100 J**	**42,000**	**210,000**	78 U
	10/26/2011		**530 I**	**66,000**	**320 I**	**3,800**	53 U	2,700 U	**400 I**
	02/14/2012		**2.1 I**	**580**	**54**	**620**	1.1 U	53 U	**44**
	06/26/2012		**5.7 I**	**30,000**	**250**	**13,000**	1.1 U	53 U	**5.7 I**
	09/11/2012		22 U	**11,000**	**280 I**	**11,000**	39 U	1,800 U	31 U
LC34-BW0002D	02/01/2011	44 to 47	**39 I**	**4,200**	**29 I**	**52 I**	7.5 U	170 U	10 U
	04/19/2011		**38 I**	**7,500**	**49 I**	**410 J**	7.5 U	170 U	10 U
	04/19/2011*		**44 I**	**7,900 Q**	**49 I**	**360 J**	7.5 U	170 U	10 U
	07/07/2011		**41 I**	**8,000**	**58 I**	**1,300**	**49 I**	530 U	16 U
	08/02/2011		**43 I**	**8,800**	**59 I**	**1,500**	**86 I**	530 U	16 U
	08/02/2011*		**41 I**	**8,100**	**63 I**	**1,100**	**81 I**	**4,300 I**	16 U
	10/26/2011		**29 I**	**16,000**	**110 I**	**3,900**	11 U	530 U	16 U
	02/14/2012		**29 I**	**13,000**	**120 I**	**6,500**	21 U	1,100 U	**52 I**
	06/26/2012		23 U	**5,100**	**110 I**	**12,000**	21 U	1,100 U	**37 I**
	09/11/2012		11 U	**40 I**	**79 I**	**9,100**	20 U	870 U	16 U
LC34-BW0002E	02/01/2011	51 to 54	**0.78 I**	**9.3**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/19/2011		**0.64 I**	**19**	0.3 U	**2 I**	0.3 U	6.7 U	**0.55 I**
	07/07/2011		4.7 U	**62 I**	4 U	4.7 U	**3,300**	**2,000 I**	6.2 U
	08/02/2011		**1.3 I**	**51**	**0.29 I**	**3.4 I**	**43**	**150 I**	0.31 U
	10/26/2011		**0.35 I**	**15**	**0.64 I**	**69**	0.21 U	11 U	**0.4 I**
	02/14/2012		0.23 U	**2.3 I**	**0.62 I**	**22**	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	**0.71 I**	**0.75 I**	**15**	0.21 U	11 U	0.31 U
	09/11/2012		**2.6 I**	**8.1**	**1.2 I**	**23**	0.39 U	18 U	**0.37 I**
LC34-BW0002F	02/01/2011	58 to 61	**10 I**	**880**	**5.0 I**	**28**	1.5 U	34 U	2 U
	04/19/2011		**4.7 I**	**80 J**	**2.1 I**	**67 J**	0.3 U	6.7 U	0.4 U
	04/19/2011*		**5.3**	**58 J**	**1.4 I**	**38 J**	0.3 U	6.7 U	0.4 U
	08/02/2011		**5.1 J**	**150 J**	**4.6 I**	**440**	**0.41 I**	11 U	0.31 U
	08/02/2011*		**2.1 IJ**	**100 J**	**2.7 I**	**370**	0.53 U	27 U	0.78 U
	10/26/2011		**0.5 I**	**8.2**	**0.63 I**	**35**	0.21 U	11 U	0.31 U
	02/14/2012		0.23 U	**0.84 I**	**0.4 I**	**6.3**	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	**1.6 I**	**4.6 I**	**160**	0.21 U	11 U	0.31 U
	09/11/2012		**6.4**	**40**	**5.1**	**130**	0.39 U	18 U	**0.81 I**

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-BW0003A	02/01/2011	23 to 26	60 U	**37,000**	60 U	**13,000**	60 U	1,400 U	80 U
	04/19/2011		60 U	**45,000**	**970 I**	**5,700**	60 U	1,400 U	**1,700**
	08/02/2011		58 U	**33,000**	**760 I**	**12,000**	53 U	2,700 U	78 U
	10/26/2011		58 U	**30,000**	**790 I**	**2,100**	53 U	2,700 U	**150 I**
	02/15/2012		12 U	**6,800**	**220 I**	**1,100**	11 U	530 U	16 U
	06/27/2012		12 U	**5,200**	**220 I**	**560**	11 U	530 U	**2,500**
	09/11/2012		**2.4 I**	**1,600**	**55**	**210**	4 U	180 U	**690**
LC34-BW0003B	02/01/2011	30 to 33	30 U	**16,000**	30 U	**5,300**	30 U	670 U	40 U
	04/19/2011		30 U	**46,000**	**600 J**	**5,500 J**	30 U	670 U	**96 I**
	04/19/2011*		30 U	**52,000**	**1,000 J**	**9,500 J**	30 U	670 U	**220 I**
	08/02/2011		23 U	**6,700**	**310 I**	**14,000**	**88 I**	1,100 U	31 U
	10/27/2011		120 U	**48,000**	**1,300 I**	**6,900**	110 U	5,300 U	160 U
	02/15/2012		12 U	**8,600**	**360**	**1,900**	11 U	530 U	**31 I**
	06/27/2012		12 U	**6,600**	**270**	**1,000**	11 U	530 U	**190 I**
	09/11/2012		4.4 U	**2,100**	**82 I**	**350**	7.9 U	350 U	**490**
LC34-BW0003C	02/02/2011	37 to 40	**140 I**	**36,000**	**240 I**	**2,900**	30 U	670 U	40 U
	03/22/2011		**65 I**	**12,000**	**110 I**	**3,200**	30 U	670 U	40 U
	03/29/2011		**36 I**	**12,000**	**160 I**	**3,500**	30 U	670 U	40 U
	04/07/2011		**32 I**	**9,800**	**150 I**	**4,700**	15 U	340 U	20 U
	04/19/2011		15 U	**6,000**	**120 I**	**4,500**	15 U	340 U	20 U
	07/07/2011		230 U	**4,300 I**	200 U	**2,400 I**	**640,000**	**360,000**	310 U
	08/02/2011		**21 I**	**2,500**	**67 I**	**3,100**	**290**	**190,000**	7.8 U
	10/27/2011		12 U	**1,800**	**180 I**	**9,400**	11 U	530 U	**23 I**
	02/15/2012		12 U	**16,000**	**600**	**14,000**	11 U	530 U	16 U
	06/27/2012		23 U	**22,000**	**840**	**8,600**	21 U	1,100 U	31 U
	09/13/2012		22 U	**17,000**	**560**	**5,100**	39 U	1,800 U	31 U
LC34-BW0003D	02/02/2011	44 to 47	**7,800**	**17,000**	**79 I**	**410 I**	30 U	670 U	**220 I**
	04/19/2011		**650**	**6,800**	**33 I**	**400**	15 U	340 U	20 U
	04/19/2011*		**500**	**5,700**	**27 I**	**340**	15 U	340 U	20 U
	07/07/2011		**1,300 I**	**7,700**	200 U	**400 I**	**830,000**	**350,000**	**420 I**
	08/02/2011		**1,100 I**	**7,500**	200 U	**740 I**	**170,000**	**510,000**	**430 I**
	10/26/2011		**96 I**	**3,500**	**27 I**	**1,900**	**6.5 I**	270 U	**410**
	02/15/2012		**28 I**	**3,200**	**51 I**	**2,900**	5.3 U	270 U	**590**
	06/27/2012		5.8 U	**360**	**65 I**	**4,000**	5.3 U	270 U	**45 I**
	09/13/2012		4.4 U	**86 I**	**61 I**	**2,600**	7.9 U	350 U	**67 I**

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-BW0003E	02/01/2011	51 to 54	0.3 U	**23**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	03/22/2011		0.3 U	**0.62 I**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	03/22/2011*		0.3 U	**1.5 I**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	03/29/2011		**0.43 I**	**1.2 I**	0.3 U	0.3 U	0.3 U	6.7 U	**0.74 I**
	04/07/2011		0.3 U	**0.56 I**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/19/2011		0.3 U	**0.72 I**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	07/07/2011		**980 I**	**1,300 I**	200 U	230 U	**1,500,000**	**520,000**	**560 I**
	08/02/2011		580 U	**1,700 I**	500 U	580 U	**420,000**	**890,000**	780 U
	10/27/2011		**2.9 I**	**20**	**0.41 I**	**110**	**0.4 I**	**70 I**	**4.9 I**
	02/15/2012		**0.48 I**	**40**	**1.7 I**	**61**	**7.4**	11 U	**5.4**
	06/27/2012		0.23 U	**4.2 I**	**4.8 I**	**66**	**27**	11 U	0.31 U
	09/13/2012		**3.1 I**	**58**	**9.4 I**	**270**	**30**	44 U	**8.9 I**
LC34-BW0003F	02/01/2011	58 to 61	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/19/2011		0.3 U	**0.94 I**	0.3 U	**0.39 I**	0.3 U	6.7 U	0.4 U
	08/02/2011		**2.7 I**	**13 I**	0.5 U	**1.3 I**	**93**	**18,000**	0.78 U
	10/27/2011		**0.5 I**	**210**	**1.1 I**	**190**	0.21 U	11 U	**0.92 I**
	02/15/2012		0.23 U	**0.81 I**	**4.3 I**	**190**	0.21 U	11 U	0.31 U
	06/27/2012		**26**	**15**	**0.43 I**	**0.91 I**	0.21 U	11 U	**66**
	09/13/2012		**0.82 I**	**3.6 I**	**2.7 I**	**90**	0.39 U	18 U	0.31 U
LC34-IW0002I	02/03/2011	25 to 30	**370 I**	**27,000**	**510**	**630**	30 U	670 U	**47,000**
	03/22/2011		**200 I**	**27,000**	**550 I**	**1,100 I**	150 U	3,400 U	**53,000**
	03/29/2011		**110 I**	**23,000**	**500**	**980**	15 U	340 U	**61,000**
	04/07/2011		150 U	**23,000**	**510 I**	**1,100 I**	150 U	3,400 U	**77,000**
	04/18/2011		**180 I**	**21,000**	**430 I**	**1,000 I**	150 U	3,400 U	**63,000**
	08/01/2011		**280 I**	**13,000**	**220 I**	**270 I**	**11,000 J**	**630,000**	**9,400 J**
	08/01/2011*		**310 I**	**14,000**	**260 I**	**370 I**	**33,000 J**	**590,000**	**16,000 J**
	10/26/2011		**57 I**	**15,000**	**320 I**	**930**	21 U	1,100 U	**34,000**
	02/15/2012		46 U	**3,500**	**140 I**	**300 I**	42 U	2,100 U	**25,000**
	06/26/2012		46 U	**970 I**	**40 I**	**110 I**	42 U	2,100 U	**19,000**
	09/13/2012		**5.5 I**	**500**	**17 I**	**43**	2 U	87 U	**11,000**
LC34-IW0002D	02/02/2011	35 to 40	**17,000**	**57,000**	**390 I**	**170 I**	30 U	670 U	40 U
	03/22/2011		**3,100**	**25,000**	**260 I**	**1,300 I**	75 U	1,700 U	**190 I**
	03/28/2011		**1,600**	**28,000**	**320 I**	**1,900**	60 U	1,400 U	**2,000**
	04/07/2011		**1,100 IJ**	**28,000**	**360 I**	**2,800 J**	75 U	1,700 U	**6,500 J**
	04/18/2011		**490 I**	**26,000**	**370 I**	**3,500**	75 U	1,700 U	**13,000**
	08/01/2011		**74 I**	**22,000**	**170 I**	**2,200**	**110 I**	**200,000**	62 U
	10/26/2011		**73 I**	**16,000**	**290 I**	**4,000**	21 U	**2,700 I**	**3,700**
	02/16/2012		**26 I**	**4,700**	**300**	**9,400**	11 U	530 U	**450**
	06/26/2012		**12 I**	**3,400**	**190**	**3,800**	5.3 U	270 U	**120 I**
	09/13/2012		**5.6 I**	**1,300**	**110**	**2,400**	7.9 U	350 U	6.2 U

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-IW0002D1	02/02/2011	50 to 55	**760**	**1,200**	**6.3 I**	**6.4 I**	3 U	67 U	**52**
	03/22/2011		**260**	**380**	**2.5 I**	**3.3 I**	0.75 U	17 U	**6.9 I**
	03/28/2011		**75**	**350**	**3 I**	**1.9 I**	0.75 U	17 U	**2 I**
	04/07/2011		**59**	**770**	**5.7 I**	**3.5 I**	0.75 U	17 U	**1.2 I**
	04/18/2011		**7.7**	**24**	0.3 U	**0.98 I**	0.3 U	6.7 U	0.4 U
	08/01/2011		**1,300**	**7,500 J**	**81**	**1,900**	**31**	**2,600**	**520**
	10/26/2011		**0.81 I**	**4.3 I**	**1.5 I**	**60**	**0.36 I**	11 U	**0.51 I**
	02/16/2012		**4.1 I**	**250**	**35**	**2,000**	0.21 U	11 U	**47**
	06/26/2012		4.7 U	**9.8 I**	**58 I**	**2,000**	4.2 U	210 U	**7.0 I**
	09/13/2012		4.4 U	**48 I**	**57 I**	**2,000**	7.9 U	350 U	**55 I**
LC34-IW0067D	02/02/2011	38 to 43	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/18/2011		0.3 U	0.3 U	0.3 U	**1.1 I**	0.3 U	6.7 U	0.4 U
	10/25/2011		0.23 U	**0.74 I**	0.2 U	**7.4**	0.21 U	11 U	0.31 U
	02/14/2012		0.23 U	**0.68 I**	0.2 U	**8.4**	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	**1.2 I**	0.2 U	**18**	0.21 U	11 U	0.31 U
LC34-IW0067D1	02/03/2011	63 to 73	0.3 U	**0.88 I**	0.3 U	0.3 U	0.3 U	6.7 U	**0.46 I**
	04/18/2011		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	10/25/2011		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	02/14/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
LC34-IW0070D	02/02/2011	38 to 43	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/18/2011		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	10/25/2011		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	02/15/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
LC34-IW0070D1	02/02/2011	65 to 75	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/18/2011		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	10/25/2011		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	02/15/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
LC34-IW0071D	02/02/2011	38 to 43	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/18/2011		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	10/25/2011		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	02/15/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
LC34-IW0071D1	02/02/2011	65 to 75	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/18/2011		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	10/25/2011		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	02/14/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U
	06/26/2012		0.23 U	0.2 U	0.2 U	0.23 U	0.21 U	11 U	0.31 U

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-IW0076	02/02/2011	70 to 80	0.3 U	**0.40 I**	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	04/18/2011		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.7 U	0.4 U
	08/01/2011		0.46 U	**4 I**	0.4 U	0.46 U	**550**	**200 I,V**	**1.3 I**
	10/25/2011		**0.27 I**	**110**	**4 I**	**5**	0.21 U	**90 I**	**54**
	02/15/2012		**0.75 I**	**180**	**8.1**	**8.4**	0.21 U	11 U	**150**
	06/26/2012		**2.7 I**	**5,000**	**81**	**170**	0.21 U	**960**	**660**
	09/13/2012		**0.49 I**	5 U	**3.9 I**	**3.5 I**	0.39 U	18 U	**87**
LC34-RW0007	02/02/2011	35 to 42	**54,000**	**50,000**	**300 I**	60 U	60 U	1,400 U	**13,000**
	03/22/2011		**14,000**	**27,000**	**210 I**	**610 I**	75 U	1,700 U	**7,400**
	03/28/2011		**17,000**	**31,000**	**200 I**	**740 I**	60 U	1,400 U	**8,200**
	03/28/2011*		**16,000**	**32,000**	**200 I**	**810 I**	60 U	1,400 U	**7,100**
	04/07/2011		**14,000**	**33,000**	**290 I**	**1,000 I**	75 U	1,700 U	**11,000**
	04/19/2011		**12,000**	**25,000**	**170 I**	**990 I**	75 U	1,700 U	**8,500**
	04/19/2011*		**12,000**	**23,000**	**160 I**	**900 I**	60 U	1,400 U	**8,700**
	07/07/2011		**21,000**	**20,000**	**150 I**	**690 I**	**410,000**	**140,000**	**13,000**
	08/01/2011		**2,400 J**	**31,000**	**130 I**	**770 I**	53 U	**180,000**	**2,900 J**
	08/01/2011*		**3,300 J**	**36,000**	**130 I**	**850 I**	**130 I**	**230,000**	**4,100 J**
	08/12/2011		**3,300**	**26,000**	50 U	58 U	**33,000**	**230,000**	**16,000**
	08/18/2011		**7,100**	**23,000**	50 U	**1,400**	53 U	**130,000**	**11,000**
	08/24/2011		**10,000**	**21,000**	**130 I**	**1,700**	42 U	**26,000 I**	**13,000**
	08/31/2011		**10,000**	**20,000**	**150 I**	**2,000**	21 U	**29,000**	**13,000**
	09/15/2011		**8,400**	**19,000**	**150 I**	**3,100**	21 U	1,100 U	**14,000**
	09/28/2011		**5,700**	**15,000**	**140 I**	**3,700**	21 U	**2,700 I**	**12,000**
	10/13/2011		**4,300**	**15,000**	**190 I**	**4,300**	21 U	**2,900 I**	**11,000**
	10/26/2011		**3,900**	**16,000**	**170 I**	**4,800**	21 U	**1,800 I**	**11,000**
	11/10/2011		**3,500**	**16,000**	**200 I**	**6,400**	21 U	1,100 U	**12,000**
	11/22/2011		**3,200**	**14,000**	**160 I**	**4,900**	21 U	1,100 U	**13,000**
	12/15/2011		**1,500**	**11,000**	**180 I**	**6,000**	21 U	1,100 U	**7,500**
	01/05/2012		**160 I**	**4,500**	**200 I**	**6,200**	11 U	530 U	**2,600**
	01/26/2012		**1,700**	**15,000**	**250 I**	**10,000**	0.21 U	11 U	**11,000**
	02/14/2012		**560 J**	**8,900**	**250 I**	**6,400**	11 U	530 U	**5,600 J**
	02/14/2012*		**1,100 J**	**9,100**	**210 I**	**7,600**	11 U	530 U	**9,500 J**
	03/15/2012		**120 I**	**3,600**	**160**	**3,000**	5.3 U	270 U	**870**
	04/19/2012		**650**	**7,200**	**200**	**8,100**	5.3 U	270 U	**8,200**
	05/17/2012		**520**	**6,000**	**190 I**	**8,700**	11 U	530 U	**11,000**
	06/26/2012		**820**	**5,500**	**250**	**8,100**	11 U	530 U	**9,500**
	07/19/2012		**640**	**4,600**	**260 I**	**7,900**	21 U	1,100 U	**8,900**
	08/16/2012		**660**	**4,300**	**190 I**	**7,400**	20 U	870 U	**8,700**
	09/13/2012		**210**	**2,300**	**100**	**2,000**	7.9 U	350 U	**2,900**

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
LC34-RW0008	02/02/2011	47 to 57	**4,900**	**3,300**	**20 I**	**18 I**	7.5 U	170 U	**620**
	03/22/2011		**1,300**	**450**	**3.0 I**	**34 I**	3 U	67 U	**190**
	03/28/2011		**840**	**280**	**1.9 I**	**14 I**	1.5 U	34 U	**130**
	04/07/2011		**790**	**360**	**1.9 I**	**13 I**	1.5 U	34 U	**140**
	04/19/2011		**1,000**	**510**	**3.0 I**	**24 I**	3 U	67 U	**160**
	04/19/2011*		**1,100**	**500**	**3.3 I**	**23 I**	3 U	67 U	**180**
	07/07/2011		**1,100**	**4,000**	40 U	**140 I**	**81,000**	**8,700 I**	62 U
	08/01/2011		**3.5 I**	**55**	**19**	**2,600**	**4 I**	**63 I,V**	**3.2 I**
	08/01/2011*		**3.2 I**	**47**	**17**	**2,900**	**4.3 I**	**220 I**	**2.2 I**
	08/12/2011		**1,900**	**1,700**	4 U	4.7 U	**8,100**	**120,000**	**710**
	08/18/2011		**1,700**	**890**	2 U	**94**	2.1 U	**9,300**	**580**
	08/24/2011		**1,500**	**830**	**3.9 I**	**160**	2.1 U	110 U	**580**
	08/31/2011		**940**	**610**	**3.2 I**	**150**	1.1 U	53 U	**310**
	09/15/2011		**970**	**860**	**5.4 I**	**310**	1.1 U	53 U	**470**
	09/28/2011		**1,100**	**1,100**	**7.6 I**	**410**	1.1 U	53 U	**590**
	10/13/2011		**1,300**	**1,300**	**10 I**	**610**	2.1 U	110 U	**760**
	10/26/2011		**1,900 J**	**1,700 J**	**12 I**	**630**	2.1 U	110 U	**1,200 J**
	11/10/2011		**2,000**	**2,000**	**14 I**	**640**	2.1 U	110 U	**1,500**
	11/22/2011		**1,100**	**1,600**	**12 I**	**580**	2.1 U	110 U	**1,100**
	12/15/2011		**1,500**	**2,300**	**17 I**	**820**	4.2 U	210 U	**1,700**
	1/5/2012		**1,100**	**1,400**	**12 I**	**560**	2.1 U	110 U	**1,300**
	1/26/2012		**940**	**1,700**	**22 I**	**1,000**	2.1 U	110 U	**1,600**
	2/14/2012		**570**	**1,100**	**14 I**	**670**	2.1 U	110 U	**850**
	3/15/2012		**620**	**1,100**	**17 I**	**900**	2.1 U	110 U	**1,100**
	4/19/2012		**290**	**870**	**17 I**	**1,100**	2.1 U	110 U	**670**
	5/17/2012		**300**	**1,300**	**18 I**	**870**	2.1 U	110 U	**1,100**
	6/26/2012		**620**	**970**	**21 I**	**990**	1.1 U	53 U	**900**
	7/19/2012		**450**	**640**	**23 I**	**870**	1.1 U	53 U	**840**
	8/16/2012		**460**	**700**	**13 I**	**600**	2 U	87 U	**1,100**
	9/13/2012		**56**	**750**	**14 I**	**710**	2 U	87 U	**530**
LC34-IJ0015	02/03/2011	32 to 42	**3,400**	**70,000**	**320 I**	**3,300**	150 U	3,400 U	200 U
LC34-IJ0016	02/03/2011	47 to 57	**600 I**	**37,000**	**180 I**	**400 I**	60 U	1,400 U	80 U
LC34-IJ0019	02/03/2011	32 to 42	15 U	**6,400**	**180 I**	**5,500**	15 U	340 U	**140 I**
LC34-IJ0020	02/03/2011	47 to 57	3 U	**1,400**	**30 I**	**410**	3 U	67 U	**23 I**

Table E-1-5. Summary of Groundwater Sampling Results: Volatile Organic Compounds
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Trichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. * indicates duplicate sample.
4. I indicates the result is between the method detection limit (MDL) and the practical quantitation limit.
5. J indicates the result is an estimated value based on data validation.
6. Q indicates that the sample was analyzed after the accepted holding time.
7. U indicates result not detected above method detection limit (MDL).
8. V indicates analyte was detected in both the sample and the associated method blank.
9. **Bold** indicates the result was detected above method detection limit (MDL).
10. Results not displayed to a set number of significant digits.

Table E-1-6. Summary of Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Chloride (mg/L)	Alkalinity (mg/L)	Bromide (mg/L)	Iodide (mg/L)
LC34-BW0001A	04/18/2011	23 to 26	0.29 U	**30**	**76**	0.07 U	0.05 U	**49.2**	0.48 U	**83.8**	**270**	0.3 U	0.2 U
	08/01/2011		**15**	**27**	**92**	0.2 U	0.3 U	**53.6**	0.2 U	**137**	**293**	0.6 U	0.2 U
	10/25/2011		**3.9**	**35**	**83**	0.2 U	0.1 U	**49.6**	0.2 U	**76.4**	**299**	0.6 U	0.2 U
	02/16/2012		**3.0**	**26**	**64**	0.2 U	0.004 U	**56**	0.2 U	**65.8 J**	**241**	0.6 U	0.2 U
	06/26/2012		**3.2**	**25**	**89**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**1.2**	**12**	**46**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0001B	04/18/2011	30 to 33	0.29 U	**17**	**85**	0.07 U	0.3 U	**44.1**	0.48 U	**258**	**329**	0.3 U	0.2 U
	08/01/2011		**51**	**30**	**100**	0.2 U	1 U	**38.1**	**4.5**	**322**	**350**	0.6 U	0.2 U
	10/25/2011		**6.5**	**12**	**23**	0.2 U	0.2 UQ	**19.7**	**2.1**	**119**	**880**	**50.6**	**89.1**
	02/16/2012		**16**	**30**	**83**	0.2 U	0.004 U	**31.5**	**3.4**	**95.8**	**328**	**3.2**	0.2 U
	02/16/2012*		NA	NA	NA	NA	NA	NA	**3.2**	NA	NA	NA	NA
	06/26/2012		**7.3**	**30**	**70**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**6.3**	**31**	**71**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0001C	04/18/2011	37 to 40	1 U	**9.5**	**62**	0.07 U	0.5 U	**26.9**	0.5 U	**570**	**341**	0.3 U	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**14.8**	**22**
	08/01/2011		**130 Q**	**16 Q**	**47 Q**	0.2 U	2 U	**2.3**	**6.2**	**500**	**408**	**23.2**	**17.9**
	10/25/2011		**57**	**10**	**64**	0.2 U	0.5 UQ	0.5 U	**9**	**287**	**718**	**40.2**	**39.9**
	02/16/2012		**59**	**53**	**600**	0.2 U	0.004 U	0.5 U	**5.8**	**247**	**760**	**29.3**	**40.7**
	02/16/2012*		NA	NA	NA	NA	NA	NA	NA	NA	NA	**36.6**	0.2 U
	06/26/2012		**50**	**660**	**1,600**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**23**	**200**	**180**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0001D	04/18/2011	44 to 47	0.29 U	**5.3**	**14**	0.07 U	0.5 U	**76.4**	0.5 U	**780**	**251**	0.3 U	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.6**	0.2 U
	08/01/2011		**140**	**5.4**	**19**	0.2 U	2 U	**79.2**	**1.2**	**670**	**250**	**2.9**	0.2 U
	08/01/2011*		NA	NA	NA	NA	NA	NA	NA	NA	**245**	NA	NA
	10/25/2011		**99**	**3.5**	**13**	0.2 U	1 UQ	**69 J**	**2.8**	**568**	**436**	**12.7**	0.2 U
	02/16/2012		**100**	**4.6**	**27**	0.2 U	0.004 U	**16.3**	**15.5**	**751**	**465**	**8.9**	0.2 U
	06/26/2012		**89**	**25**	**110**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**93**	**43**	**160**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0001E	04/18/2011	51 to 54	0.29 U	0.3 U	**6.8**	0.07 U	0.9 U	**94.9**	0.5 U	**600**	**167**	**1.2**	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.2**	0.2 U
	08/01/2011		**10**	**2.1**	**9.9**	0.2 U	2 U	**77.3**	**1.5**	**595**	**183**	**1.4**	0.2 U
	08/01/2011*		NA	NA	NA	NA	NA	NA	**1.5**	NA	NA	NA	0.2 U
	10/25/2011		**6.9**	**110**	**95**	0.2 U	1 UQ	**16.8**	**9.3**	**625**	**299**	**4.8**	0.2 U
	02/16/2012		**3.7**	**110**	**620**	0.2 U	0.004 U	**25.4**	**8.9**	**603**	**239**	**2.9**	0.2 U
	06/26/2012		**13**	**610**	**2,200**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		7.3 U	**390**	**2,700**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0001F	04/18/2011	58 to 61	0.29 U	0.3 U	**5.8**	0.07 U	0.9 U	**112**	0.5 U	**636**	**166**	**1.1**	0.2 U
	08/01/2011		0.29 U	0.3 U	**4.3**	0.2 U	2 U	**45.7**	**5.8**	**409**	**504**	**26.9**	0.2 U
	08/01/2011*		NA	NA	NA	0.2 U	2 U	**45.4**	NA	**406**	NA	**26.3**	0.2 U
	10/25/2011		0.29 U	0.3 U	**51**	0.2 U	1 UQ	**103**	**1.1**	**670**	**169**	**1.6**	0.2 U
	02/16/2012		**1.8**	**58**	**270**	0.2 U	0.004 U	**37.4**	**6.7**	**619**	**250**	**3**	0.2 U
	06/26/2012		1.5 U	**56**	**440**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		1.5 U	**99**	**300**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0002A	04/19/2011	23 to 26	0.29 U	**33**	**75**	NA	NA	NA	NA	NA	NA	0.3 U	0.2 U
	04/19/2011*		0.29 U	**32**	**80**	NA	NA	NA	NA	NA	NA	NA	NA
	08/02/2011		**32 J**	**18**	**86**	NA	NA	NA	NA	NA	NA	0.6 U	0.2 U
	10/26/2011		**3**	**46**	**660**	NA	NA	NA	NA	NA	NA	**11.8**	**14**
	02/15/2012		**98**	**140**	**410**	NA	NA	NA	NA	NA	NA	**2.7**	**2.6**
	02/15/2012*		**96**	**150**	**410**	NA	NA	NA	NA	NA	NA	NA	NA
	06/26/2012		0.58 U	**97**	**92**	NA	NA	NA	NA	NA	NA	NA	NA
	09/11/2012		0.29 U	**42**	**39**	NA	NA	NA	NA	NA	NA	NA	NA

Table E-1-6. Summary of Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Chloride (mg/L)	Alkalinity (mg/L)	Bromide (mg/L)	Iodide (mg/L)
LC34-BW0002B	04/19/2011	30 to 33	0.29 U	**12**	**93**	NA	NA	NA	NA	NA	NA	0.3 U	0.2 U
	08/02/2011		**82 J**	**14**	**130**	NA	NA	NA	NA	NA	NA	0.6 U	0.2 U
	10/26/2011		**15**	**27**	**82**	NA	NA	NA	NA	NA	NA	**6.8**	**7.4**
	02/15/2012		**4.5**	**110**	**150**	NA	NA	NA	NA	NA	NA	0.6 U	0.2 U
	06/26/2012		0.58 U	**100**	**230**	NA	NA	NA	NA	NA	NA	NA	NA
	09/11/2012		0.58 U	**44**	**140**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0002C	04/19/2011	37 to 40	0.29 U	**8**	**58**	0.07 U	0.9 U	**47.8**	0.48 U	**687**	**247**	0.3 U	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**24.1**	**14.4**
	08/02/2011		**69 J**	**21**	**52**	0.2 U	1 U	0.5 U	**10.5**	**539 J**	**480**	**7.6 J**	**12.9**
	08/02/2011*		NA	NA	NA	0.2 U	0.1 U	0.5 U	NA	**53.2 J**	NA	**8.6**	NA
	10/26/2011		**110**	**31**	**170**	0.2 U	1 UQ	**4.2**	**10.9**	**548**	**366**	**2.9**	**6.6**
	02/14/2012		0.58 U	**170**	**140**	0.2 U	0.004 U	**26.2**	**2.4**	**50.5**	**233**	0.6 U	0.2 U
	02/14/2012*		NA	NA	NA	0.2 U	0.004 U	**25.9**	NA	**46.8**	NA	NA	NA
	06/26/2012		**65**	**430**	**690**	NA	NA	NA	NA	NA	NA	NA	NA
	09/11/2012		**52**	**890**	**1,800**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0002D	04/19/2011	44 to 47	0.29 U	**2.9**	**9**	NA	NA	NA	NA	NA	NA	**1.3**	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.2**	0.2 U
	08/02/2011		**17 J**	**14**	**290**	NA	NA	NA	NA	NA	NA	**1.1**	0.2 U
	08/02/2011*		NA	NA	NA	NA	NA	NA	NA	NA	NA	**1**	0.2 U
	10/26/2011		**27**	**21**	**65**	NA	NA	NA	NA	NA	NA	**11.7**	0.2 U
	02/14/2012		**41**	**180**	**110**	NA	NA	NA	NA	NA	NA	**6.5**	**2.8**
	06/26/2012		**42**	**560**	**1,400**	NA	NA	NA	NA	NA	NA	NA	NA
	09/11/2012		**36**	**1,000**	**1,600**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0002E	04/19/2011	51 to 54	0.29 U	0.3 U	**6.8**	NA	NA	NA	NA	NA	NA	0.3 U	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.5**	0.2 U
	08/02/2011		0.29 U	0.3 U	**8.4**	NA	NA	NA	NA	NA	NA	**1.4**	0.2 U
	10/26/2011		0.29 U	**3.3**	**17**	NA	NA	NA	NA	NA	NA	**2.2**	0.2 U
	02/14/2012		**1.7**	**90**	**46**	NA	NA	NA	NA	NA	NA	**2**	0.2 U
	06/26/2012		**3.3**	**160**	**78**	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/2012		**3.4**	**160**	**77**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0002F	04/19/2011	58 to 61	0.29 U	0.3 U	**6.4**	NA	NA	NA	NA	NA	NA	0.3 U	0.2 U
	08/02/2011		**1.3 J**	**1.5**	**14**	NA	NA	NA	NA	NA	NA	**2.3**	0.2 U
	10/26/2011		0.29 U	**7.2**	**8.6**	NA	NA	NA	NA	NA	NA	**2.3**	0.2 U
	02/14/2012		0.29 U	**6.9**	**8.2**	NA	NA	NA	NA	NA	NA	**2**	0.2 U
	06/26/2012		**1.2**	**65**	**19**	NA	NA	NA	NA	NA	NA	NA	NA
	09/11/2012		**1.6**	**110**	**22**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0003A	04/19/2011	23 to 26	0.29 U	**110**	**94**	NA	NA	NA	NA	NA	NA	0.3 U	0.2 U
	08/02/2011		**12 J**	**240**	**110**	NA	NA	NA	NA	NA	NA	0.6 U	0.2 U
	08/02/2011*		**12 J**	**250**	**110**	NA	NA	NA	NA	NA	NA	NA	NA
	10/26/2011		**1.9**	**53**	**94**	NA	NA	NA	NA	NA	NA	0.6 U	0.2 U
	02/15/2012		0.29 U	**5.4**	**15**	NA	NA	NA	NA	NA	NA	0.6 U	0.2 U
	06/27/2012		**1.1**	**24**	**82**	NA	NA	NA	NA	NA	NA	NA	NA
	09/11/2012		0.29 U	**11**	**110**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0003B	04/19/2011	30 to 33	0.29 U	**160**	**97**	NA	NA	NA	NA	NA	NA	0.3 U	0.2 U
	08/02/2011		**24 J**	**410**	**85**	NA	NA	NA	NA	NA	NA	**7.7**	**9.6**
	10/27/2011		**2.3**	**99**	**95**	NA	NA	NA	NA	NA	NA	**1.2**	0.2 U
	02/15/2012		0.29 U	**11**	**24**	NA	NA	NA	NA	NA	NA	0.6 U	0.2 U
	06/27/2012		0.29 U	**20**	**76**	NA	NA	NA	NA	NA	NA	NA	NA
	09/11/2012		0.29 U	**12**	**99**	NA	NA	NA	NA	NA	NA	NA	NA

Table E-1-6. Summary of Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Chloride (mg/L)	Alkalinity (mg/L)	Bromide (mg/L)	Iodide (mg/L)
LC34-BW0003C	04/19/2011	37 to 40	0.29 U	**260**	**96**	0.07 U	0.9 U	**34**	0.48 U	**490**	**279**	0.3 U	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**36.1**	**58**
	08/02/2011		**15 J**	**150**	**710**	0.2 U	0.8 U	**3.4**	**14.6**	**329**	**760**	**52**	**64.1**
	08/02/2011*		NA	NA	NA	NA	NA	NA	**14.7**	NA	**746**	NA	NA
	10/27/2011		**12**	**770**	**300**	0.2 U	0.8 UQ	**13.3**	**4.9**	**360**	**313**	**1.5**	0.2 U
	02/15/2012		2.9 U	**640**	**240**	0.2 U	0.004 U	**35.3**	**4.2**	**237**	**308**	0.6 U	0.2 U
	02/15/2012*		NA	NA	NA	NA	NA	NA	NA	NA	**310**	NA	NA
	06/27/2012		**13**	**620**	**210**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**9.6**	**410**	**180**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0003D	04/19/2011	44 to 47	0.29 U	**4.5**	**44**	NA	NA	NA	NA	NA	NA	**1.3**	0.2 U
	04/19/2011*		1 U	**4.3**	**43**	NA	NA	NA	NA	NA	NA	NA	NA
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**23.5**	0.2 U
	08/02/2011		**20 J**	**5.5**	**18**	NA	NA	NA	NA	NA	NA	**38.4**	0.2 U
	10/26/2011		**11**	**35**	**1,800**	NA	NA	NA	NA	NA	NA	**10.8**	0.2 U
	02/15/2012		7.3 U	**310**	**1,700**	NA	NA	NA	NA	NA	NA	**5.7**	**3.3**
	06/27/2012		**26**	**910**	**1,400**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**26**	**1,200**	**1,400**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0003E	04/19/2011	51 to 54	0.29 U	0.3 U	**6.5**	NA	NA	NA	NA	NA	NA	**1.3**	0.2 U
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**44.5**	0.2 U
	08/02/2011		0.29 UJ	**1.7**	**30**	NA	NA	NA	NA	NA	NA	**58.2**	0.2 U
	10/27/2011		0.29 U	**4.1**	**2,000**	NA	NA	NA	NA	NA	NA	**8.8**	0.2 U
	02/15/2012		**6.1**	**310**	**390**	NA	NA	NA	NA	NA	NA	**3.2**	0.2 U
	06/27/2012		**18**	**850**	**680**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**21**	**1,000**	**920**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-BW0003F	04/19/2011	58 to 61	0.29 U	0.3 U	**7**	NA	NA	NA	NA	NA	NA	**1.4**	0.2 U
	08/02/2011		0.29 U	0.3 U	**750**	NA	NA	NA	NA	NA	NA	**2.5**	0.2 U
	08/02/2011*		0.29 U	0.3 U	**850**	NA	NA	NA	NA	NA	NA	NA	NA
	10/27/2011		**1.5**	**5.1**	**170**	NA	NA	NA	NA	NA	NA	**3.1**	0.2 U
	02/15/2012		**7.8**	**450**	**570**	NA	NA	NA	NA	NA	NA	**2.7**	0.2 U
	06/27/2012		10 U	**85**	**1,300**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		20 U	**290**	**1,100**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-IW0002I	04/18/2011	25 to 30	0.29 U	**19**	**61**	0.07 U	0.05 U	**51.4**	0.5 U	**73.1**	**250**	0.3 U	0.2 U
	08/01/2011		**23**	**7.1**	**44**	0.2 U	0.3 U	0.5 U	**1.3**	**138**	**632**	**34.8**	**44.5**
	10/26/2011		**6.2**	**29**	**69**	0.2 U	0.1 U	**30.9**	**2.7**	**65.4 J**	**285**	**2.7**	**2.5 J**
	02/15/2012		**3.8**	**9.2**	**51**	0.2 U	0.004 U	**44.3**	0.2 U	**52.1 J**	**228**	0.6 U	0.2 U
	06/26/2012		**1.6**	**5.5**	**35**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**1.6**	**3.1**	**24**	NA	NA	NA	NA	NA	NA	NA	NA

Table E-1-6. Summary of Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Chloride (mg/L)	Alkalinity (mg/L)	Bromide (mg/L)	Iodide (mg/L)
LC34-IW0002D	04/18/2011	35 to 40	0.29 U	**110**	**110**	0.07 U	0.3 U	**31.8**	0.48 U	**301**	**318**	0.3 U	0.2 U
	08/01/2011		**48**	**28**	**43**	0.2 U	1 U	0.5 U	**3.4**	**352**	**1,150**	**9.1**	**41.6**
	10/26/2011		**48**	**120**	**230**	0.2 U	0.6 UQ	**8.0**	**10.5**	**227**	**642**	**20.3**	**18.3**
	02/16/2012		**13**	**44**	**660**	0.2 U	0.004 U	0.5 U	**7.6**	**96.6**	**420**	**10.8**	**10.8**
	06/26/2012		**40**	**920**	**970**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**24**	**670**	**310**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-IW0002D1	04/18/2011	50 to 55	0.29 U	0.3 U	**8.6**	0.07 U	0.9 U	**105**	0.48 U	**628**	**167**	**1.6**	0.2 U
	08/01/2011		**20**	**29**	**5,600**	0.2 U	2 U	0.5 U	**6.2**	**451**	**660**	**9**	**5.1**
	08/01/2011*		**22**	**31**	**5,800**	NA	NA	NA	NA	NA	NA	NA	NA
	10/26/2011		**2.9**	**140**	**390**	0.2 UQ	1 U	**43.3**	**9.1**	**650**	**244**	**3.5**	0.2 U
	02/16/2012		**7.6**	**370**	**240**	0.2 U	0.004 U	**5.1**	**14.4**	**572**	**301**	**4.7**	**2.2**
	06/26/2012		**32**	**1,400**	**1,300**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**30**	**1,600**	**2,700**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-IW0076	04/18/2011	70 to 80	0.29 U	0.3 U	**5.8**	NA	NA	NA	NA	NA	NA	0.3 U	0.2 U
	08/01/2011		0.29 U	0.3 U	**7.7**	NA	NA	NA	NA	NA	NA	**1.2**	0.2 U
	10/25/2011		0.29 U	0.3 U	**790**	NA	NA	NA	NA	NA	NA	**2.5**	0.2 U
	02/15/2012		2.9 U	3 U	**780**	NA	NA	NA	NA	NA	NA	**1.9**	0.2 U
	06/26/2012		2.9 U	3 U	**980**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		0.73 U	**6.7**	**210**	NA	NA	NA	NA	NA	NA	NA	NA
LC34-RW0007	03/22/2011	35 to 42	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.7**	0.2 U
	03/28/2011		**80**	**8.6**	**40**	0.07 U	0.5 U	**59**	**1.1**	**664**	**227**	0.3 U	0.2 U
	04/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.3**	0.2 U
	04/19/2011		0.29 U	**11**	**47**	0.07 U	0.9 U	**61.2**	**1.0**	**642**	**223**	**1.5**	0.2 U
	04/19/2011*		0.29 U	**11**	**47**	0.07 U	0.9 U	**60.5**	0.48 U	**645**	**221**	NA	NA
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**17.4**	**2.1**
	08/01/2011		**61**	**9.8**	**35**	0.2 U	1 U	0.5 U	**1.7**	**519**	**510**	**27.7**	**2.3**
	08/12/2011		**55**	**14**	**93**	0.05 U	0.004 U	**17.8**	**9.2**	**264**	**460**	**11.8**	**15.2**
	08/18/2011		**53**	**14**	**76**	0.2 U	1 U	0.5 U	**14.7**	**421**	**510**	**25.6**	**16.8**
	08/18/2011*		NA	NA	NA	0.2 U	NA	0.5 U	NA	NA	NA	**25.2**	NA
	08/24/2011		**50**	**12**	**100**	0.2 UQ	1 UQ	0.5 U	**24.5**	**516**	**498**	**20.2**	**10.8**
	08/31/2011		**49**	**15**	**150**	0.2 U	1 U	**2.3**	**22.6**	**487**	**472**	**17.5**	**11.2**
	09/15/2011		**48**	**33**	**290**	0.2 U	1 UQ	0.5 U	**21.1**	**512**	**445**	**12.9**	**10.3**
	09/28/2011		**46**	**53**	**380**	0.2 U	1 UQ	0.5 U	**19.9**	**509**	**440**	**16**	**11.5**
	10/13/2011		**48 J**	**86**	**420**	0.2 U	1 U	0.5 U	**16.9**	**433**	**468**	**17.8**	**14.5**
	10/26/2011		**39**	**110**	**330**	0.2 U	1 UQ	**2.1**	**17.1**	**437**	**468**	**13.6**	**14**
	11/10/2011		**44**	**150**	**520**	0.2 U	0.004 U	0.5 U	**16.1**	**472**	**470**	**21.4**	**12.9**
	11/22/2011		**41**	**190**	**510**	0.2 U	0.004 U	**2.1**	**17.7**	**469**	**430**	**13.8**	**10.6**
	12/15/2011		**46**	**300**	**1,100**	0.2 U	0.004 U	**4.3**	**13.6**	**384**	**455**	**13.1**	**10.9**
	01/05/2012		**30**	**740**	**3,200**	0.2 U	0.004 U	**3.7**	**13.5**	**199**	**460**	**7.3**	**12.4**
	01/26/2012		**45**	**480**	**1,300**	0.2 U	0.004 U	**2.2**	**15**	**431**	**368**	**7.8**	**7.9**
	02/14/2012		**37**	**500**	**1,100**	0.2 U	0.004 U	**4.2**	**15.1**	**409**	**390**	**8.0**	**7.2**
	06/26/2012		**41**	**1,200**	**1,700**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**11**	**370**	**360**	NA	NA	NA	NA	NA	NA	NA	NA

Table E-1-6. Summary of Groundwater Sampling Results: Dissolved Hydrocarbon Gases, Anions & Tracers
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Chloride (mg/L)	Alkalinity (mg/L)	Bromide (mg/L)	Iodide (mg/L)
LC34-RW0008	03/22/2011	47 to 57	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.1**	0.2 U
	03/28/2011		**3.1**	0.3 U	**7.7**	0.07 U	0.5 U	**91.3**	0.5 U	**665**	**168**	**1.8**	0.2 U
	04/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	0.2 U
	04/19/2011		0.29 U	0.3 U	**8.8**	0.07 U	0.9 U	**92.4**	0.5 U	**675**	**173**	**1.7**	0.2 U
	04/19/2011*		0.29 U	**11**	**47**	0.07 U	0.9 U	**60.5**	0.48 U	**645**	**221**	NA	NA
	07/07/2011		NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.8**	0.2 U
	08/01/2011		**16**	**310**	**30**	0.2 U	2 U	0.5 U	**2.9**	**602**	**279**	**4.8**	0.2 U
	08/01/2011*		NA	NA	NA	0.2 U	1 U	0.5 U	NA	**629**	NA	NA	NA
	08/12/2011		**7.8**	**2.0**	**120**	0.05 U	0.004 U	**23.1**	**10.4**	**594**	**378**	**17.3**	0.2 U
	08/18/2011		**5.2**	**7.8**	**300**	0.2 U	1 U	**3.2**	**16.2**	**641**	**369**	**8.4**	0.2 U
	08/24/2011		**4.3**	**9.3**	**370**	0.2 UQ	1 UQ	0.5 U	**19.7**	**604**	**368**	**8.2**	0.2 U
	08/31/2011		**3.8**	**23**	**520**	0.2 U	1 U	**3.7**	**18.6**	**590**	**329**	**5.6**	0.2 U
	09/15/2011		**4.4**	**26**	**430**	0.2 U	1 UQ	**17.4**	**15.4**	**609**	**299**	**4.8**	0.2 U
	09/28/2011		**5.6**	**28**	**410**	0.2 U	1 UQ	**13.4**	**14**	**633**	**271**	**2.8**	0.2 U
	10/13/2011		**7.4 J**	**71**	**460**	0.2 U	1 U	**15.9**	**14.5**	**624**	**287**	**4.2**	0.2 U
	10/26/2011		**8.8**	**95**	**400**	0.2 U	1 UQ	**14.2**	**14.7**	**632**	**288**	**4.5**	0.2 U
	11/10/2011		**10**	**140**	**450**	0.2 U	0.004 U	**7.3**	**14.4**	**652**	**300**	**4.5**	0.2 U
	11/22/2011		**10**	**190**	**450**	0.2 U	0.004 U	**7.3**	**15**	**620**	**294**	**4.0**	0.2 U
	12/15/2011		**13**	**270**	**600**	0.2 U	0.004 U	**7.0**	**13.9**	**605**	**321**	**5.3**	0.2 U
	01/05/2012		**13**	**320**	**670**	0.2 U	0.004 U	**3.9**	**13.5**	**679**	**314**	**4.5**	0.2 U
	01/26/2012		**13**	**370**	**490**	0.2 U	0.004 U	**3.5**	**13.3**	**622**	**288**	**4.8**	0.2 U
	02/14/2012		**13**	**450**	**510**	0.2 U	0.004 U	**2.9**	**13.3**	**621**	**300**	**4.3**	0.2 U
	06/26/2012		**23**	**910**	**620**	NA	NA	NA	NA	NA	NA	NA	NA
	09/13/2012		**30**	**940**	**760**	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. mg/L indicates millgrams per liter.
4. Alkalinity is reported as mg/L as $CaCO_3$.
5. J indicates the result is an estimated value based on data validation.
6. Q indicates that the sample was analyzed after the accepted holding time.
7. U indicates result not detected above method detection limit (MDL).
8. NA indicates not analyzed.
9. **Bold** indicates the result was detected above method detection limit (MDL).
10. * indicates duplicate sample.
11. Results not displayed to a set number of significant digits.

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-BW0001A	02/01/2011	23 to 26	NA	NA	NA	NA	NA	NA	30 U	670 U
	04/18/2011		**3.2**	**1.7**	0.56 U	0.072 U	0.13 U	0.018 U	150 U	3,400 U
	08/01/2011		**4.2**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	**340 I**	5,300 U
	08/01/2011*		**304**	NA	NA	NA	NA	NA	**670 I**	**49,000 I**
	10/25/2011		**7.2**	**11**	0.56 U	0.072 U	0.13 U	0.018 U	53 U	2,700 U
	02/16/2012		**2.8**	**1.6**	0.56 U	0.072 U	0.13 U	0.018 U	110 U	5,300 U
	02/16/2012*		**3.0**	NA	NA	NA	NA	NA	NA	NA
	06/26/2012		**2.6**	NA	NA	NA	NA	NA	110 U	5,300 U
	09/13/2012		**2.3**	NA	NA	NA	NA	NA	39 U	1,800 U
LC34-BW0001B	02/01/2011	30 to 33	NA	NA	NA	NA	NA	NA	60 U	1,400 U
	04/18/2011		**5.7**	**27**	0.56 U	**2.3**	0.13 U	0.018 U	300 U	6,700 U
	08/01/2011		**8.0**	0.073 U	0.56 U	**1.7**	0.13 U	0.018 U	**1,000 I**	11,000 U
	10/25/2011		**760**	**970**	**180**	0.72 U	1.3 U	0.18 U	**56,000**	**1,400,000**
	02/16/2012		**32**	**47**	**17**	0.072 U	0.13 U	0.018 U	210 U	11,000 U
	06/26/2012		**4.9**	NA	NA	NA	NA	NA	210 U	11,000 U
	09/13/2012		**3.4**	NA	NA	NA	NA	NA	98 U	4,400 U
LC34-BW0001C	02/01/2011	37 to 40	NA	NA	NA	NA	NA	NA	150 U	3,400 U
	03/22/2011		NA	NA	NA	NA	NA	NA	75 U	1,700 U
	03/29/2011		NA	NA	NA	NA	NA	NA	60 U	1,400 U
	04/07/2011		NA	NA	NA	NA	NA	NA	75 U	1,700 U
	04/18/2011		**7.3**	**65**	0.56 U	**1.2**	0.13 U	0.018 U	150 U	3,400 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**420,000**	**320,000**
	08/01/2011		**301**	**370**	**120**	0.15 U	0.26 U	0.036 U	**95,000**	**280,000**
	08/01/2011*		**304**	NA	NA	NA	NA	NA	NA	NA
	10/25/2011		**511**	**480**	**530**	0.36 U	**12**	0.09 U	110 U	**200,000**
	02/16/2012		**504**	**390**	**440**	0.36 U	**13**	0.09 U	53 U	2,700 U
	06/26/2012		**120**	NA	NA	NA	NA	NA	53 U	2,700 U
	09/13/2012		**10.4**	NA	NA	NA	NA	NA	98 U	4,400 U
LC34-BW0001D	02/01/2011	44 to 47	NA	NA	NA	NA	NA	NA	150 U	3,400 U
	04/18/2011		**7.5**	**50**	0.56 U	**1.1**	0.13 U	0.018 U	300 U	6,700 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**60,000**	**23,000 I**
	08/01/2011		**37.2**	**21**	**4**	**1.2**	0.13 U	0.018 U	**71,000**	**15,000 I**
	08/01/2011*		NA	NA	NA	NA	NA	NA	**84,000**	**22,000 I**
	10/25/2011		**241**	**340**	**29**	0.15 U	0.26 U	0.036 U	**270,000**	**310,000**
	02/16/2012		**176**	**200**	**140**	0.15 U	0.26 U	0.036 U	210 U	**36,000 I**
	06/26/2012		**99**	NA	NA	NA	NA	NA	210 U	11,000 U
	09/13/2012		**92**	NA	NA	NA	NA	NA	200 U	8,700 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-BW0001E	02/01/2011	51 to 54	NA	NA	NA	NA	NA	NA	3 U	67 U
	03/22/2011		NA	NA	NA	NA	NA	NA	1.5 U	34 U
	03/29/2011		NA	NA	NA	NA	NA	NA	0.75 U	17 U
	04/07/2011		NA	NA	NA	NA	NA	NA	0.75 U	17 U
	04/18/2011		**3.3**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.6 U	14 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**3,500**	**1,500 I**
	08/01/2011		**8.3**	**10**	0.56 U	0.072 U	0.13 U	0.018 U	**4.6 I**	**730 I,V**
	10/25/2011		**79**	**140**	**34**	0.072 U	**3.5**	0.018 U	1.1 U	53 U
	02/16/2012		**10.7**	**17**	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	06/26/2012		**21.1**	NA	NA	NA	NA	NA	0.21 U	11 U
	09/13/2012		**9**	NA	NA	NA	NA	NA	0.98 U	44 U
LC34-BW0001F	02/01/2011	58 to 61	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**3.3**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.3 U	6.7 U
	08/01/2011		**606**	**590**	**30**	0.36 U	0.64 U	0.09 U	**900,000**	**620,000 I,V**
	10/25/2011		**4.4**	**1.7**	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	**150 I**
	02/16/2012		**16.8**	**32**	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	06/26/2012		**3.9**	NA	NA	NA	NA	NA	0.21 U	11 U
	09/13/2012		**3.5**	NA	NA	NA	NA	NA	**0.4 I**	18 U
LC34-BW0002A	02/01/2011	23 to 26	NA	NA	NA	NA	NA	NA	60 U	1,400 U
	04/19/2011		**3**	**2.4**	0.56 U	0.072 U	0.13 U	0.018 U	75 U	1,700 U
	04/19/2011*		NA	**2.4**	0.56 U	0.072 U	0.13 U	0.018 U	75 U	1,700 U
	08/02/2011		**3.7**	**13**	0.56 U	0.072 U	0.13 U	0.018 U	**150 I**	**11,000 I**
	10/26/2011		**178**	**370**	**57**	0.15 U	0.26 U	0.036 U	21 U	1,100 U
	02/15/2012		**41**	**100**	0.56 U	0.072 U	0.13 U	0.018 U	21 U	1,100 U
	06/26/2012		**2.7**	NA	NA	NA	NA	NA	0.53 U	27 U
	09/11/2012		**2.5**	NA	NA	NA	NA	NA	0.39 U	18 U
LC34-BW0002B	02/01/2011	30 to 33	NA	NA	NA	NA	NA	NA	75 U	1,700 U
	04/19/2011		**4.1**	**18**	0.56 U	0.072 U	0.13 U	0.018 U	75 U	1,700 U
	08/02/2011		**12.9**	**48**	**3.7**	**1.1**	0.13 U	0.018 U	**130 I**	2,700 U
	08/02/2011*		**13.8**	NA	NA	NA	NA	NA	NA	NA
	10/26/2011		**107**	**230**	**30**	0.15 U	**2.4**	0.036 U	53 U	2,700 U
	02/15/2012		**11.4**	**19**	0.56 U	0.072 U	0.13 U	0.018 U	5.3 U	270 U
	06/26/2012		**3.0**	NA	NA	NA	NA	NA	2.1 U	110 U
	09/11/2012		**2.7**	NA	NA	NA	NA	NA	0.98 U	44 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-BW0002C	02/01/2011	37 to 40	NA	NA	NA	NA	NA	NA	75 U	1,700 U
	03/22/2011		NA	NA	NA	NA	NA	NA	75 U	1,700 U
	03/29/2011		NA	NA	NA	NA	NA	NA	150 U	3,400 U
	04/07/2011		NA	NA	NA	NA	NA	NA	150 U	3,400 U
	04/19/2011		**4.3**	**36**	0.56 U	0.072 U	0.13 U	0.018 U	150 U	3,400 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**490,000**	**120,000 I**
	08/02/2011		**354**	**350**	**290**	0.36 U	0.64 U	0.09 U	**42,000**	**210,000**
	10/26/2011		**78**	**160**	**43**	**1.1**	**2**	0.018 U	53 U	2,700 U
	02/14/2012		**2.5**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	1.1 U	53 U
	06/26/2012		**49.1**	NA	NA	NA	NA	NA	1.1 U	53 U
	09/11/2012		**77.9**	NA	NA	NA	NA	NA	39 U	1,800 U
LC34-BW0002D	02/01/2011	44 to 47	NA	NA	NA	NA	NA	NA	7.5 U	170 U
	04/19/2011		**4**	**3.3**	0.56 U	0.072 U	0.13 U	0.018 U	7.5 U	170 U
	04/19/2011*		**4**	**3.3**	0.56 U	0.072 U	0.13 U	0.018 U	7.5 U	170 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**49 I**	530 U
	08/02/2011		**4.1**	**3.3**	0.56 U	0.072 U	0.13 U	0.018 U	**86 I**	530 U
	08/02/2011*		NA	NA	NA	NA	NA	NA	**81 I**	**4,300 I**
	10/26/2011		**102**	**130**	**61**	0.072 U	**13**	0.018 U	11 U	530 U
	02/14/2012		**88**	**190**	**20**	0.072 U	**2.1**	0.018 U	21 U	1,100 U
	06/26/2012		**104**	NA	NA	NA	NA	NA	21 U	1,100 U
	09/11/2012		**87**	NA	NA	NA	NA	NA	20 U	870 U
LC34-BW0002E	02/01/2011	51 to 54	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/19/2011		**3.2**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.3 U	6.7 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**3,300**	**2,000 I**
	08/02/2011		**4.4**	**2.8**	0.56 U	0.072 U	0.13 U	0.018 U	**43**	**150 I**
	10/26/2011		**4**	**1.8**	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	02/14/2012		**4.6**	**4.3**	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	06/26/2012		**5.3**	NA	NA	NA	NA	NA	0.21 U	11 U
	09/11/2012		**4.9**	NA	NA	NA	NA	NA	0.39 U	18 U
LC34-BW0002F	02/01/2011	58 to 61	NA	NA	NA	NA	NA	NA	1.5 U	34 U
	04/19/2011		**3.1**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.3 U	6.7 U
	04/19/2011*		NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	08/02/2011		**7.1**	**11**	0.56 U	0.072 U	0.13 U	0.018 U	**0.41 I**	11 U
	08/02/2011*		NA	NA	NA	NA	NA	NA	0.53 U	27 U
	10/26/2011		**3.5**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	02/14/2012		**3.1**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	06/26/2012		**3.4**	NA	NA	NA	NA	NA	0.21 U	11 U
	09/11/2012		**3.3**	NA	NA	NA	NA	NA	0.39 U	18 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-BW0003A	02/01/2011	23 to 26	NA	NA	NA	NA	NA	NA	60 U	1,400 U
	04/19/2011		**2.9**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	60 U	1,400 U
	08/02/2011		**7.2**	**12**	0.56 U	0.072 U	0.13 U	0.018 U	53 U	2,700 U
	10/26/2011		**5.7**	**9**	0.56 U	0.072 U	0.13 U	0.018 U	53 U	2,700 U
	02/15/2012		**2.6**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	11 U	530 U
	06/27/2012		**2.4**	NA	NA	NA	NA	NA	11 U	530 U
	09/11/2012		**2.3**	NA	NA	NA	NA	NA	4 U	180 U
LC34-BW0003B	02/01/2011	30 to 33	NA	NA	NA	NA	NA	NA	30 U	670 U
	04/19/2011		**3.3**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	30 U	670 U
	04/19/2011*		**3.2**	NA	NA	NA	NA	NA	30 U	670 U
	08/02/2011		**89**	**120**	**95**	0.072 U	**2.1**	0.018 U	**88 I**	1,100 U
	08/02/2011*		**99**	NA	NA	NA	NA	NA	NA	NA
	10/27/2011		**10.6**	**16**	**2.7**	0.072 U	0.13 U	0.018 U	110 U	5,300 U
	02/15/2012		**2.7**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	11 U	530 U
	06/27/2012		**2.6**	NA	NA	NA	NA	NA	11 U	530 U
	09/11/2012		**2.3**	NA	NA	NA	NA	NA	7.9 U	350 U
LC34-BW0003C	02/02/2011	37 to 40	NA	NA	NA	NA	NA	NA	30 U	670 U
	03/22/2011		NA	NA	NA	NA	NA	NA	30 U	670 U
	03/29/2011		NA	NA	NA	NA	NA	NA	30 U	670 U
	04/07/2011		NA	NA	NA	NA	NA	NA	15 U	340 U
	04/19/2011		**3.8**	**8.1**	0.56 U	0.072 U	0.13 U	0.018 U	15 U	340 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**640,000**	**360,000**
	08/02/2011		**671**	**680**	**630**	0.36 U	**15**	0.09 U	**290**	**190,000**
	10/27/2011		**14.5**	**25**	0.56 U	0.072 U	0.13 U	0.018 U	11 U	530 U
	02/15/2012		**6.2**	**6.8**	0.56 U	0.072 U	0.13 U	0.018 U	11 U	530 U
	06/27/2012		**4.2**	NA	NA	NA	NA	NA	21 U	1,100 U
	09/13/2012		**3.2**	NA	NA	NA	NA	NA	39 U	1,800 U
LC34-BW0003D	02/02/2011	44 to 47	NA	NA	NA	NA	NA	NA	30 U	670 U
	04/19/2011		**4.1**	**4.8**	0.56 U	0.072 U	0.13 U	0.018 U	15 U	340 U
	04/19/2011*		NA	NA	NA	NA	NA	NA	15 U	340 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**830,000**	**350,000**
	08/02/2011		**603**	**640**	**320**	0.36 U	0.64 U	0.09 U	**170,000**	**510,000**
	08/02/2011*		NA	**620**	**310**	0.36 U	0.64 U	0.09 U	NA	NA
	10/26/2011		**169**	**250**	**99**	0.36 U	**24**	0.09 U	**6.5 I**	270 U
	02/15/2012		**98**	**190**	**17**	0.072 U	**5**	0.018 U	5.3 U	270 U
	06/27/2012		**59**	NA	NA	NA	NA	NA	5.3 U	270 U
	09/13/2012		**50.1**	NA	NA	NA	NA	NA	7.9 U	350 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-BW0003E	02/01/2011	51 to 54	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	03/22/2011		NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	03/22/2011*		NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	03/29/2011		NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/07/2011		NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/19/2011		**3.4**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.3 U	6.7 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**1,500,000**	**520,000**
	08/02/2011		**905**	**870**	**360**	0.36 U	0.64 U	0.09 U	**420,000**	**890,000**
	10/27/2011		**56.3**	**57**	**29**	0.072 U	**2.7**	0.018 U	**0.4 I**	**70 I**
	02/15/2012		**34.1**	**73**	**2.9**	0.072 U	0.13 U	0.018 U	**7.4**	11 U
	06/27/2012		**42.1**	NA	NA	NA	NA	NA	**27**	11 U
	09/13/2012		**37.5**	NA	NA	NA	NA	NA	**30**	44 U
LC34-BW0003F	02/01/2011	58 to 61	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/19/2011		**3.2**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.3 U	6.7 U
	08/02/2011		**107**	**140**	**58**	0.072 U	**13**	0.018 U	**93**	**18,000**
	10/27/2011		**30.1**	**65**	**4.6**	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	02/15/2012		**20**	**39**	0.56 U	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	06/27/2012		**4.5**	NA	NA	NA	NA	NA	0.21 U	11 U
	09/13/2012		**4.9**	NA	NA	NA	NA	NA	0.39 U	18 U
LC34-IW0002I	02/03/2011	25 to 30	NA	NA	NA	NA	NA	NA	30 U	670 U
	03/22/2011		NA	NA	NA	NA	NA	NA	150 U	3,400 U
	03/29/2011		NA	NA	NA	NA	NA	NA	15 U	340 U
	04/07/2011		NA	NA	NA	NA	NA	NA	150 U	3,400 U
	04/18/2011		**3.3**	**2.3**	0.56 U	0.072 U	0.13 U	0.018 U	150 U	3,400 U
	08/01/2011		**487**	**610**	**210**	0.36 U	0.64 U	0.09 U	**11,000**	**630,000**
	08/01/2011*		NA	**620**	**200**	0.36 U	0.64 U	0.09 U	**33,000**	**590,000**
	10/26/2011		**31.1**	**55**	**13**	0.072 U	**2.7**	0.018 U	21 U	1,100 U
	02/15/2012		**4.0**	**3.6**	0.56 U	0.072 U	0.13 U	0.018 U	42 U	2,100 U
	02/15/2012*		NA	**3.7**	2 U	0.072 U	0.13 U	0.018 U	NA	NA
	06/26/2012		**3.0**	NA	NA	NA	NA	NA	42 U	2,100 U
	09/13/2012		**2.3**	NA	NA	NA	NA	NA	2 U	87 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-IW0002D	02/02/2011	35 to 40	NA	NA	NA	NA	NA	NA	30 U	670 U
	03/22/2011		NA	NA	NA	NA	NA	NA	75 U	1,700 U
	03/28/2011		NA	NA	NA	NA	NA	NA	60 U	1,400 U
	04/07/2011		NA	NA	NA	NA	NA	NA	75 U	1,700 U
	04/18/2011		**5.1**	**24**	0.56 U	0.072 U	0.13 U	0.018 U	75 U	1,700 U
	08/01/2011		**1,130**	**1,100**	**1,200**	0.72 U	**11**	0.18 U	**110 I**	**200,000**
	08/01/2011*		NA	**1,100**	**1,200**	0.72 U	1.3 U	0.18 U	NA	NA
	10/26/2011		**590**	**390**	**810**	0.36 U	**49**	0.09 U	21 U	**2,700 I**
	02/16/2012		**124**	**230**	**38**	0.15 U	**7.7**	0.036 U	11 U	530 U
	06/26/2012		**22.9**	NA	NA	NA	NA	NA	5.3 U	270 U
	09/13/2012		**8.7**	NA	NA	NA	NA	NA	7.9 U	350 U
LC34-IW0002D1	02/02/2011	50 to 55	NA	NA	NA	NA	NA	NA	3 U	67 U
	03/22/2011		NA	NA	NA	NA	NA	NA	0.75 U	17 U
	03/28/2011		NA	NA	NA	NA	NA	NA	0.75 U	17 U
	04/07/2011		NA	NA	NA	NA	NA	NA	0.75 U	17 U
	04/18/2011		**3.1**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.3 U	6.7 U
	08/01/2011		**587**	**450**	2.8 U	0.36 U	**21**	0.09 U	**31**	**2,600**
	10/26/2011		**42.7**	**93**	**5**	0.072 U	0.13 U	0.018 U	**0.36 I**	11 U
	02/16/2012		**57.6**	**110**	**9.9**	0.072 U	**1.5**	0.018 U	0.21 U	11 U
	06/26/2012		**48.9**	NA	NA	NA	NA	NA	4.2 U	210 U
	09/13/2012		**37.4**	NA	NA	NA	NA	NA	7.9 U	350 U
LC34-IW0067D	02/02/2011	38 to 43	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**3.6**	NA	NA	NA	NA	NA	0.3 U	6.7 U
	10/25/2011		NA	NA	NA	NA	NA	NA	0.21 U	11 U
	02/14/2012		**3.6**	NA	NA	NA	NA	NA	0.21 U	11 U
	06/26/2012		NA	NA	NA	NA	NA	NA	0.21 U	11 U
LC34-IW0067D1	02/03/2011	63 to 73	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**3.3**	NA	NA	NA	NA	NA	0.3 U	6.7 U
	10/25/2011		NA	NA	NA	NA	NA	NA	0.21 U	11 U
	02/14/2012		**3**	NA	NA	NA	NA	NA	0.21 U	11 U
	06/26/2012		NA	NA	NA	NA	NA	NA	0.21 U	11 U
LC34-IW0070D	02/02/2011	38 to 43	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**4.1**	NA	NA	NA	NA	NA	0.3 U	6.7 U
	10/25/2011		NA	NA	NA	NA	NA	NA	0.21 U	11 U
	02/15/2012		**4.1**	NA	NA	NA	NA	NA	0.21 U	11 U
	06/26/2012		NA	NA	NA	NA	NA	NA	0.21 U	11 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-IW0070D1	02/02/2011	65 to 75	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**3.2**	NA	NA	NA	NA	NA	0.3 U	6.7 U
	10/25/2011		NA	NA	NA	NA	NA	NA	0.21 U	11 U
	02/15/2012		**3.1**	NA	NA	NA	NA	NA	0.21 U	11 U
	06/26/2012		NA	NA	NA	NA	NA	NA	0.21 U	11 U
LC34-IW0071D	02/02/2011	38 to 43	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**3.6**	NA	NA	NA	NA	NA	0.3 U	6.7 U
	10/25/2011		NA	NA	NA	NA	NA	NA	0.21 U	11 U
	02/15/2012		**3.4**	NA	NA	NA	NA	NA	0.21 U	11 U
	06/26/2012		NA	NA	NA	NA	NA	NA	0.21 U	11 U
LC34-IW0071D1	02/02/2011	65 to 75	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**3.3**	NA	NA	NA	NA	NA	0.3 U	6.7 U
	10/25/2011		NA	NA	NA	NA	NA	NA	0.21 U	11 U
	02/14/2012		**3.1**	NA	NA	NA	NA	NA	0.21 U	11 U
	06/26/2012		NA	NA	NA	NA	NA	NA	0.21 U	11 U
LC34-IW0076	02/02/2011	70 to 80	NA	NA	NA	NA	NA	NA	0.3 U	6.7 U
	04/18/2011		**3.3**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	0.3 U	6.7 U
	08/01/2011		**3.7**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	**550**	**200 I,V**
	10/25/2011		**4.7**	**12**	**13**	0.072 U	0.13 U	0.018 U	0.21 U	**90 I**
	02/15/2012		**7.3**	**2.8**	**3.3**	0.072 U	0.13 U	0.018 U	0.21 U	11 U
	06/26/2012		**3.3**	NA	NA	NA	NA	NA	0.21 U	**960**
	09/13/2012		**3.1**	NA	NA	NA	NA	NA	0.39 U	18 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-RW0007	02/02/2011	35 to 42	NA	NA	NA	NA	NA	NA	60 U	1,400 U
	03/22/2011		**5.3**	**33**	0.56 U	**1.2**	0.13 U	0.018 U	75 U	1,700 U
	03/28/2011		**4.9**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	60 U	1,400 U
	03/28/2011*		NA	NA	NA	NA	NA	NA	60 U	1,400 U
	04/07/2011		**5.3**	**24**	0.56 U	0.072 U	0.13 U	0.018 U	75 U	1,700 U
	04/19/2011		**4.4**	**22**	0.56 U	0.072 U	0.13 U	0.018 U	75 U	1,700 U
	04/19/2011*		**4.5**	**22**	0.56 U	0.072 U	0.13 U	0.018 U	60 U	1,400 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**410,000**	**140,000**
	08/01/2011		**327**	**350**	**230**	0.15 U	**5.2**	0.036 U	53 U	**180,000**
	08/01/2011*		NA	NA	NA	NA	NA	NA	**130 I**	**230,000**
	08/12/2011		**191**	**260**	**68**	0.36 U	0.64 U	0.09 U	**33,000**	**230,000**
	08/18/2011		**363**	**380**	**320**	0.36 U	**11**	0.09 U	53 U	**130,000**
	08/18/2011*		**358**	NA	NA	NA	NA	NA	NA	NA
	08/24/2011		**322**	**320**	**350**	0.36 U	**18**	0.09 U	42 U	**26,000 I**
	08/31/2011		**280**	**290**	**310**	0.36 U	**17**	0.09 U	21 U	**29,000**
	09/15/2011		**219**	**250**	**250**	0.36 U	**16**	0.09 U	21 U	1,100 U
	09/28/2011		**242**	**260**	**250**	0.36 U	**18**	0.09 U	21 U	**2,700 I**
	10/13/2011		**262**	**280**	**300**	0.36 U	**22**	0.09 U	21 U	**2,900 I**
	10/26/2011		**246**	**270**	**270**	0.36 U	**17**	0.09 U	21 U	**1,800 I**
	11/10/2011		**222**	**270**	**240**	0.36 U	**16**	0.09 U	21 U	1,100 U
	11/22/2011		**174**	**240**	**170**	0.15 U	**12**	0.036 U	21 U	1,100 U
	12/15/2011		**172**	**230**	**130**	0.15 U	**9.7**	0.036 U	21 U	1,100 U
	01/05/2012		**153**	**220**	**54**	0.36 U	**8.9**	0.09 U	11 U	530 U
	01/26/2012		**113**	**170**	**50**	0.36 U	**5.3**	0.09 U	0.21 U	11 U
	02/14/2012		**108**	**170**	**49**	0.072 U	**4.9**	0.018 U	11 U	530 U
	02/14/2012*		NA	NA	NA	NA	NA	NA	11 U	530 U
	03/15/2012		NA	NA	NA	NA	NA	NA	5.3 U	270 U
	04/19/2012		NA	NA	NA	NA	NA	NA	5.3 U	270 U
	05/17/2012		NA	NA	NA	NA	NA	NA	11 U	530 U
	06/26/2012		**63**	NA	NA	NA	NA	NA	11 U	530 U
	07/19/2012		NA	NA	NA	NA	NA	NA	21 U	1,100 U
	08/16/2012		NA	NA	NA	NA	NA	NA	20 U	870 U
	09/13/2012		**9.6**	NA	NA	NA	NA	NA	7.9 U	350 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)
LC34-RW0008	02/02/2011	47 to 57	NA	NA	NA	NA	NA	NA	7.5 U	170 U
	03/22/2011		**3.6**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	3 U	67 U
	03/28/2011		**3.5**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	1.5 U	34 U
	04/07/2011		**3.5**	0.073 U	0.56 U	0.072 U	0.13 U	0.018 U	1.5 U	34 U
	04/19/2011		**3.4**	**1**	0.56 U	0.072 U	0.13 U	0.018 U	3 U	67 U
	04/19/2011*		NA	NA	NA	NA	NA	NA	3 U	67 U
	07/07/2011		NA	NA	NA	NA	NA	NA	**81,000**	**8,700 I**
	08/01/2011		**73.1**	**130**	**28**	0.072 U	**1.1**	0.018 U	**4 I**	**63 I,V**
	08/01/2011*		**73.4**	NA	NA	NA	NA	NA	**4.3 I**	**220 I**
	08/12/2011		**203**	**220**	**150**	0.15 U	**5.5**	0.036 U	**8,100**	**120,000**
	08/18/2011		**177**	**230**	**150**	0.36 U	**12**	0.09 U	2.1 U	**9,300**
	08/24/2011		**147**	**220**	**100**	0.36 U	**15**	0.09 U	2.1 U	110 U
	08/31/2011		**122**	**210**	**72**	0.36 U	**15**	0.09 U	1.1 U	53 U
	09/15/2011		**80**	**140**	**34**	0.072 U	**5.1**	0.018 U	1.1 U	53 U
	09/28/2011		**64**	**140**	**12**	0.072 U	**2.2**	0.018 U	1.1 U	53 U
	10/13/2011		**61**	**130**	**16**	0.072 U	**1.8**	0.018 U	2.1 U	110 U
	10/26/2011		**65**	**130**	**19**	0.072 U	**1.4**	0.018 U	2.1 U	110 U
	11/10/2011		**59.2**	**120**	**22**	0.072 U	**1.4**	0.018 U	2.1 U	110 U
	11/22/2011		**56**	**120**	**18**	0.072 U	**1.6**	0.018 U	2.1 U	110 U
	12/15/2011		**56.3**	**120**	**13**	0.072 U	**1.6**	0.018 U	4.2 U	210 U
	01/05/2012		**50.9**	**96**	**8.5**	0.072 U	**1.4**	0.018 U	2.1 U	110 U
	01/26/2012		**48.3**	**100**	**7.1**	0.072 U	**1.2**	0.018 U	2.1 U	110 U
	02/14/2012		**43.5**	**91**	**4.8**	0.072 U	**1.2**	0.018 U	2.1 U	110 U
	03/15/2012		NA	NA	NA	NA	NA	NA	2.1 U	110 U
	04/19/2012		NA	NA	NA	NA	NA	NA	2.1 U	110 U
	05/17/2012		NA	NA	NA	NA	NA	NA	2.1 U	110 U
	06/26/2012		**37.1**	NA	NA	NA	NA	NA	1.1 U	53 U
	07/19/2012		NA	NA	NA	NA	NA	NA	1.1 U	53 U
	08/16/2012		NA	NA	NA	NA	NA	NA	2 U	87 U
	09/13/2012		**27**	NA	NA	NA	NA	NA	2 U	87 U

Table E-1-7. Summary of Groundwater Sampling Results: TOC, VFAs and nBA
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Acetic Acid (mg/L)	Butanoic Acid (mg/L)	Lactic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)	n-Butyl Acetate (µg/L)	n-Butanol (µg/L)

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. mg/L indicates milligrams per liter.
4. I indicates the result is between the MDL and the practical quantitation limit (PQL).
5. U indicates result not detected above method detection limit (MDL).
6. V indicates analyte was detected in both the sample and the associated method blank.
7. TOC indicates total organic carbon.
9. VFA indicates volatile fatty acid.
10. NA indicates not analyzed.
11. **Bold** indicates the result was detected above method detection limit (MDL).
12. * indicates duplicate sample.
13. Results not displayed to a set number of significant digits.

Table E-1-8. Summary of Groundwater Sampling Results: Dissolved Metals
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Arsenic (µg/L)	Iron (µg/L)	Manganese (µg/L)
LC34-BW0001A	04/18/2011	23 to 26	4 U	**230**	**31**
	08/01/2011		2 U	20 U	**29**
	10/25/2011		2 U	**130**	**24**
	02/16/2012		2 U	30 U	**18**
LC34-BW0001B	04/18/2011	30 to 33	4 U	**110**	**25**
	08/01/2011		2 U	20 U	**28**
	10/25/2011		2 U	**380**	**43**
	02/16/2012		2 U	30 U	**17**
LC34-BW0001C	04/18/2011	37 to 40	4 U	**110**	**17**
	08/01/2011		2 U	**120**	**30**
	10/25/2011		2 U	**120**	**39**
	02/16/2012		2 U	**140**	**57**
LC34-BW0001D	04/18/2011	44 to 47	4 U	**110**	**34**
	08/01/2011		2 U	20 U	**29**
	10/25/2011		2 U	**230**	**41**
	02/16/2012		2 U	30 U	**47**
LC34-BW0001E	04/18/2011	51 to 54	4 U	60 U	**16**
	08/01/2011		2 U	20 U	**17**
	10/25/2011		2 U	30 U	**18**
	02/16/2012		2 U	30 U	**13**
LC34-BW0001F	04/18/2011	58 to 61	4 U	**110**	**13**
	08/01/2011		2 U	**350**	**36**
	10/25/2011		2 U	**130**	**13**
	02/16/2012		2 U	30 U	**12**
LC34-IW0002I	04/18/2011	25 to 30	4 U	60 U	**31**
	08/01/2011		2 U	**3,500**	**126**
	10/26/2011		2 U	**550**	**100**
	02/15/2012		2 U	30 U	**69**
LC34-IW0002D	04/18/2011	35 to 40	4 U	**110**	**11**
	08/01/2011		2 U	**1,590**	**198**
	10/26/2011		2 U	30 U	**98**
	02/16/2012		2 U	30 U	**57**
LC34-IW0002D1	04/18/2011	50 to 55	4 U	**110**	**13**
	08/01/2011		2 U	20 U	**60**
	08/01/2011*		2 U	20 U	**59**
	10/26/2011		2 U	30 U	**13**
	02/16/2012		2 U	30 U	**14**
LC34-IW0076	04/18/2011	70 to 80	4 U	60 U	**11**
	08/01/2011		2 U	20 U	2 U
	08/01/2011*		2 U	20 U	**10**
	10/25/2011		2 U	30 U	**13**
	02/15/2012		2 U	30 U	**14**

Table E-1-8. Summary of Groundwater Sampling Results: Dissolved Metals
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Arsenic (µg/L)	Iron (µg/L)	Manganese (µg/L)
LC34-RW0007	04/19/2011	35 to 42	4 U	**120**	**10**
	04/19/2011*		4 U	60 U	2 U
	08/01/2011		2 U	**880**	**91**
	08/12/2011		2 U	20 U	**12 V**
	08/18/2011		2 U	20 U	**19**
	08/24/2011		2 U	20 U	**25**
	08/31/2011		2 U	**200**	**23**
	09/15/2011		2 U	20 U	**23**
	09/28/2011		2 U	**140**	**21**
	10/13/2011		2 U	20 U	**23**
	10/26/2011		2 U	30 U	**20**
	11/10/2011		2 U	30 U	**22**
	11/22/2011		2 U	30 U	**22**
	12/15/2011		2 U	30 U	**15**
	01/05/2012		2 U	30 U	**19**
	01/26/2012		2 U	30 U	**25**
	02/14/2012		10 U	100 U	**15**
LC34-RW0008	04/19/2011	47 to 57	4 U	**120 J**	**15**
	04/19/2011*		4 U	60 UJ	**14**
	08/01/2011		2 U	**690**	**86**
	08/12/2011		2 U	**180 VJ**	**23 V**
	08/18/2011		2 U	**120**	**20**
	08/24/2011		2 U	20 U	**22**
	08/31/2011		2 U	**190**	**21**
	09/15/2011		2 U	20 U	**16**
	09/28/2011		2 U	**140**	**16**
	10/13/2011		2 U	20 U	**15**
	10/26/2011		2 U	30 U	**15**
	11/10/2011		2 U	30 U	**16**
	11/22/2011		2 U	30 U	**16**
	12/15/2011		2 U	30 U	**12**
	01/05/2012		2 U	30 U	**15**
	01/26/2012		2 U	30 U	**15**
	02/14/2012		10 U	100 U	**12**
	02/14/2012*		10 U	100 U	**12**

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. J indicates the result is an estimated value based on data validation.
4. U indicates result not detected above method detection limit (MDL).
5. V indicates analyte was detected in both the sample and the associated method blank.
6. * indicates duplicate sample.
7. **Bold** indicates the result was detected above method detection limit (MDL).
8. Results not displayed to a set number of significant digits.

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-BW0001A	02/01/2011	23 to 26	23.8	7.45	1.20	5.7	-154	0.40	0.80	Clear
	04/18/2011		24.2	7.43	0.78	1.9	-156	0.38	0.51	Clear
	08/01/2011		26.9	7.67	1.16	2.0	-31	0.41	0.75	Clear
	10/25/2011		25.5	7.26	0.86	1.7	-146	0.46	0.56	Clear
	02/16/2012		24.2	7.75	0.77	2.8	-111	0.45	0.50	Clear
	06/26/2012		24.0	6.91	0.70	1.1	-116	0.60	0.45	Clear
	09/13/2012		26.2	7.41	0.89	0.5	-141	1.36	0.58	Clear
LC34-BW0001B	02/01/2011	30 to 33	24.0	7.49	2.31	9.9	-146	0.33	1.53	Clear
	04/18/2011		24.8	7.55	1.39	2.3	-159	0.24	0.91	Clear
	08/01/2011		26.4	7.62	1.81	6.5	-48	0.28	1.17	Clear
	10/25/2011		25.8	7.03	2.37	0.7	-175	0.39	1.54	Clear
	02/16/2012		24.8	7.60	0.99	2.5	-254	0.23	0.64	Clear
	06/26/2012		24.2	7.06	0.82	0.7	-119	0.24	0.53	Clear
	09/13/2012		26.3	7.59	1.06	0.6	-164	1.21	0.69	Clear
LC34-BW0001C	02/01/2011	37 to 40	24.4	7.52	2.88	8.2	-150	0.28	1.90	Clear
	03/22/2011		24.6	7.34	2.59	4.8	-163	0.53	1.69	Clear
	03/29/2011		24.6	7.50	2.09	4.9	-59	0.49	1.34	Clear
	04/07/2011		25.3	7.47	2.47	2.2	-141	0.17	1.61	Clear
	04/18/2011		24.9	7.43	2.06	11.8	-146	0.54	1.35	Clear
	07/07/2011		26.1	7.15	2.59	1.6	-125	0.23	1.68	Clear
	08/01/2011		26.3	7.81	2.14	1.3	-53	0.23	1.38	Clear
	10/25/2011		25.7	7.07	2.38	0.8	-274	0.10	1.55	Clear
	02/16/2012		24.2	7.25	1.03	3.9	-229	0.30	0.89	Clear
	06/26/2012		24.5	6.72	1.45	0.6	-167	0.16	0.95	Clear
	09/13/2012		26.4	7.61	0.99	5.6	-16	0.41	0.65	Clear
LC34-BW0001D	02/01/2011	44 to 47	25.2	7.36	3.19	4.9	-122	0.36	2.07	Clear
	04/18/2011		25.6	7.37	2.75	3.9	-123	0.32	1.79	Clear
	07/07/2011		25.6	7.33	2.96	4.5	-101	0.24	1.92	Clear
	08/01/2011		27.0	7.64	2.00	4.2	-37	0.24	1.32	Clear
	10/25/2011		25.7	7.10	2.76	4.4	-302	0.35	1.79	Clear
	02/16/2012		25.4	6.73	2.92	7.9	-251	0.36	1.90	Clear
	06/26/2012		24.5	6.85	2.67	1.0	-223	0.16	1.73	Clear
	09/13/2012		25.7	6.99	3.79	17.3	-283	1.62	2.46	Cloudy

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-BW0001E	02/01/2011	51 to 54	24.9	7.69	2.71	9.7	-150	0.37	1.76	Clear
	03/22/2011		24.5	7.60	2.39	5.7	-155	0.35	1.55	Clear
	03/29/2011		25.1	7.64	2.57	8.7	-65	0.41	1.61	Clear
	04/07/2011		24.8	7.71	2.51	5.1	-139	0.15	1.63	Clear
	04/18/2011		24.7	7.69	2.37	12.0	-154	0.33	1.54	Clear
	07/07/2011		25.6	7.60	2.58	3.9	-145	0.17	1.68	Clear
	08/01/2011		27.4	7.32	1.99	4.5	-32	1.25	1.25	Clear
	10/25/2011		25.8	7.48	2.69	0.5	-281	0.20	1.75	Clear
	02/16/2012		25.2	7.47	2.52	2.3	-300	0.26	1.64	Clear
	06/26/2012		24.7	7.13	2.39	1.4	-215	0.21	1.55	Clear
	09/13/2012		26.2	7.54	3.34	7.1	-274	1.43	2.17	Cloudy
LC34-BW0001F	02/01/2011	58 to 61	24.9	7.64	2.81	8.6	-152	0.37	1.83	Clear
	04/18/2011		25.0	7.65	2.47	3.9	-119	0.49	1.61	Clear
	08/01/2011		26.0	7.80	2.05	4.2	-43	0.89	1.32	Clear
	10/25/2011		25.6	7.49	2.67	1.4	-188	0.30	1.74	Clear
	02/16/2012		25.1	7.25	2.53	0.9	-287	0.30	1.64	Clear
	06/26/2012		24.7	7.05	2.44	0.6	-167	0.27	1.53	Clear
	09/13/2012		26.2	7.15	2.52	6.6	-175	0.47	1.65	Clear
LC34-BW0002A	02/01/2011	23 to 26	24.7	7.44	1.28	1.4	-170	0.19	0.84	Clear
	04/19/2011		24.5	7.49	0.67	8.4	-175	0.20	0.43	Clear
	08/02/2011		26.4	7.87	1.00	4.7	-11	0.65	0.65	Clear
	10/26/2011		25.8	7.18	1.30	2.5	-184	0.31	0.85	Clear
	02/15/2012		25.4	7.37	2.11	4.5	-299	0.17	1.39	Clear
	06/26/2012		25.1	7.35	0.68	2.7	-189	0.23	0.44	Clear
	09/11/2012		26.2	7.13	0.96	0.6	72	0.70	0.63	Clear
LC34-BW0002B	02/01/2011	30 to 33	24.7	7.56	2.11	3.7	-183	0.30	1.38	Clear
	04/19/2011		25.0	7.50	0.90	5.8	-186	0.20	0.59	Clear
	08/02/2011		26.5	7.50	1.61	9.7	-13	1.04	1.04	Clear
	10/26/2011		25.5	7.34	1.19	3.2	-237	0.35	0.77	Clear
	02/15/2012		25.4	7.26	0.79	6.5	-213	0.22	0.48	Clear
	06/26/2012		25.2	7.46	0.70	2.0	-253	0.20	0.46	Clear
	09/11/2012		26.0	7.23	0.95	1.0	-20	0.30	0.61	Cloudy

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-BW0002C	02/01/2011	37 to 40	24.7	7.69	2.62	0.0	-197	0.37	1.71	Clear
	03/22/2011		24.6	7.71	2.56	7.5	-210	0.36	1.66	Clear
	03/29/2011		23.6	7.31	2.49	5.1	-60	0.62	1.62	Clear
	04/07/2011		24.8	7.75	2.48	11.6	-149	0.25	1.62	Clear
	04/19/2011		25.2	7.60	2.10	5.3	-203	0.27	1.37	Clear
	07/07/2011		26.5	7.53	2.42	6.1	-255	0.16	1.58	Clear
	08/02/2011		26.2	7.24	2.61	4.3	-15	0.97	1.77	Clear
	10/26/2011		25.4	7.38	2.52	0.8	-330	0.15	1.64	Clear
	02/14/2012		25.2	7.45	0.66	1.2	-161	0.10	0.43	Clear
	06/26/2012		26.0	7.28	2.11	2.4	-364	0.19	1.35	Clear
	09/11/2012		25.9	7.44	2.49	0.9	-251	0.30	1.62	Clear
LC34-BW0002D	02/01/2011	44 to 47	24.3	7.61	2.68	0.0	-154	0.35	1.77	Clear
	04/19/2011		25.1	7.68	2.05	2.6	-211	0.24	1.33	Clear
	07/07/2011		26.4	7.39	2.43	11.7	-161	0.20	1.58	Clear
	08/02/2011		26.4	7.68	2.37	1.2	-13	0.24	1.21	Clear
	10/26/2011		25.3	7.56	2.76	0.7	-338	0.77	1.80	Clear
	02/14/2012		25.2	7.41	2.67	1.4	-288	0.09	1.74	Clear
	06/26/2012		26.0	7.30	2.58	4.3	-361	0.10	1.65	Clear
	09/11/2012		26.9	7.69	3.31	5.5	-325	1.77	2.19	Cloudy
LC34-BW0002E	02/01/2011	51 to 54	23.7	7.58	2.60	7.5	-154	0.41	1.74	Clear
	04/19/2011		25.3	7.66	2.06	18.7	-187	0.08	1.34	Clear
	07/07/2011		25.6	7.77	2.58	5.6	-229	0.12	1.68	Clear
	08/02/2011		26.9	7.61	2.04	12.9	-3	0.33	1.34	Clear
	10/26/2011		26.1	7.77	2.66	1.8	-251	0.20	1.73	Clear
	02/14/2012		25.4	7.65	2.55	1.0	-266	0.09	1.66	Clear
	06/26/2012		25.1	7.61	2.40	1.3	-274	0.15	1.60	Clear
	09/11/2012		26.2	7.74	3.21	2.7	-236	1.44	2.09	Cloudy
LC34-BW0002F	02/01/2011	58 to 61	22.9	7.37	2.68	2.2	-109	0.52	1.82	Clear
	04/19/2011		25.2	7.63	2.14	2.2	-155	0.16	1.39	Clear
	08/02/2011		26.6	7.71	2.19	7.0	-16	0.54	1.45	Clear
	10/26/2011		26.3	7.69	2.73	0.4	-220	0.24	1.78	Clear
	02/14/2012		25.0	7.71	2.59	0.8	-204	0.11	1.68	Clear
	06/26/2012		24.9	7.57	2.53	1.4	-258	0.12	1.64	Clear
	09/11/2012		26.2	7.82	3.30	1.9	-286	0.71	2.15	Clear

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-BW0003A	02/01/2011	23 to 26	24.3	7.43	1.44	10.3	-152	0.35	0.95	Clear
	04/19/2011		24.4	7.43	0.72	0.5	-180	1.16	0.47	Clear
	08/02/2011		25.8	7.86	1.30	2.9	-170	2.13	0.85	Clear
	10/26/2011		26.4	7.23	0.85	1.8	-252	0.80	0.56	Clear
	02/15/2012		24.8	7.47	0.76	2.1	-150	0.18	0.49	Clear
	06/27/2012		24.5	7.52	0.71	0.4	-175	0.61	0.46	Clear
	09/11/2012		26.6	7.41	0.90	0.4	-87	2.32	0.58	Clear
LC34-BW0003B	02/01/2011	30 to 33	24.4	7.66	1.89	13.4	-196	0.22	1.25	Clear
	04/19/2011		24.5	7.48	0.82	3.8	-176	0.34	0.53	Clear
	08/02/2011		25.8	7.53	1.83	1.0	-167	2.35	1.19	Clear
	10/27/2011		25.2	7.30	0.95	1.4	-238	0.78	0.61	Clear
	02/15/2012		25.2	7.52	0.80	2.4	-161	0.21	0.52	Clear
	06/27/2012		24.4	7.54	0.73	0.5	-169	0.21	0.47	Clear
	09/11/2012		26.0	7.28	0.89	0.6	-104	1.49	0.58	Clear
LC34-BW0003C	02/02/2011	37 to 40	23.9	7.73	2.42	7.0	-143	0.20	1.60	Clear
	03/22/2011		24.2	7.56	2.20	2.7	-181	0.24	1.43	Clear
	03/29/2011		23.6	7.50	2.50	8.9	-92	0.42	1.62	Clear
	04/07/2011		24.7	7.70	2.16	2.8	-168	0.12	1.40	Clear
	04/19/2011		24.8	7.56	1.60	6.1	-177	0.19	1.04	Clear
	07/07/2011		25.2	7.26	2.02	18.4	-123	0.21	1.31	Clear
	08/02/2011		26.2	6.88	3.07	3.2	-276	1.26	1.99	Clear
	10/27/2011		25.6	7.32	1.75	2.7	-282	0.36	1.14	Clear
	02/15/2012		25.0	7.50	1.19	7.9	-199	0.17	0.84	Clear
	06/27/2012		24.6	7.61	1.09	0.5	-248	0.30	0.71	Clear
	09/13/2012		25.6	7.65	1.16	1.6	-141	3.09	0.76	Clear
LC34-BW0003D	02/02/2011	44 to 47	24.0	7.71	2.59	5.1	-115	0.21	1.71	Clear
	04/19/2011		24.8	7.51	1.86	11.1	-177	0.31	1.21	Clear
	07/07/2011		25.7	5.74	2.12	13.1	13	0.42	1.41	Clear
	08/02/2011		27.1	6.95	2.98	5.0	-268	1.24	1.94	Clear
	10/26/2011		25.8	6.43	2.61	6.8	-292	0.60	1.70	Clear
	02/15/2012		25.0	6.90	2.53	5.1	-314	0.19	1.65	Clear
	06/27/2012		25.1	7.28	2.42	7.8	-346	0.56	1.57	Clear
	09/13/2012		25.8	7.28	3.13	1.3	-268	1.35	2.03	Cloudy

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-BW0003E	02/01/2011	51 to 54	24.2	7.65	2.63	2.9	-149	0.32	1.74	Clear
	03/22/2011		24.4	7.56	2.37	5.9	-159	0.25	1.54	Clear
	03/29/2011		24.0	7.71	2.12	6.6	-94	0.65	1.41	Clear
	04/07/2011		25.0	7.74	2.48	4.9	-136	0.17	1.61	Clear
	04/19/2011		24.6	7.59	1.87	5.0	-158	0.25	1.22	Clear
	07/07/2011		25.0	6.94	1.97	7.0	-128	0.22	1.28	Clear
	08/02/2011		25.6	7.10	2.94	1.2	-265	0.97	1.90	Clear
	10/26/2011		25.8	6.43	2.61	6.8	-292	0.60	1.70	Clear
	02/15/2012		25.1	6.84	2.56	2.3	-300	0.19	1.67	Clear
	06/27/2012		25.0	7.37	2.60	1.0	-289	0.70	1.69	Clear
	09/13/2012		25.7	7.33	3.36	0.9	-238	1.73	2.18	Cloudy
LC34-BW0003F	02/01/2011	58 to 61	24.3	7.61	2.80	2.4	-142	0.24	1.85	Clear
	04/19/2011		24.6	7.56	2.01	2.2	-133	0.22	1.30	Clear
	08/02/2011		25.6	7.80	2.78	1.3	-248	1.25	1.80	Clear
	10/27/2011		26.0	7.32	2.73	1.4	-287	0.34	1.78	Clear
	02/15/2012		24.9	6.88	2.61	1.0	-270	0.18	1.70	Clear
	06/27/2012		25.1	7.54	2.59	1.1	-285	0.33	1.69	Clear
	09/13/2012		25.8	7.54	3.46	5.3	-262	1.63	2.25	Cloudy
LC34-IW0002I	02/03/2011	25 to 30	24.0	7.30	1.25	10.3	-137	0.61	0.83	Clear
	03/22/2011		25.2	7.26	0.88	3.7	-146	0.61	0.57	Clear
	03/29/2011		24.8	7.63	2.35	4.7	-53	0.45	1.31	Clear
	04/07/2011		24.5	7.40	0.85	6.1	-138	0.35	0.55	Clear
	04/18/2011		24.4	7.44	0.73	5.1	-141	0.29	0.48	Clear
	08/01/2011		27.0	6.57	1.95	4.3	-143	0.91	1.27	Clear
	10/26/2011		26.0	6.99	0.78	9.5	-291	0.52	0.51	Clear
	02/15/2012		24.8	7.32	0.66	4.1	-729	0.86	0.43	Clear
	06/26/2012		25.3	6.86	0.60	3.2	-80	0.32	0.39	Clear
	09/13/2012		26.4	7.63	0.51	10.9	-118	0.77	0.33	Clear

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-IW0002D	02/02/2011	35 to 40	24.6	7.38	2.81	6.0	-95	0.42	1.84	Clear
	03/22/2011		24.8	7.40	1.96	7.2	-144	0.48	1.28	Clear
	03/28/2011		23.3	7.46	1.90	5.5	-149	0.69	1.23	Clear
	04/07/2011		24.6	7.58	1.81	1.7	-153	0.27	1.18	Clear
	04/18/2011		25.9	7.80	1.24	3.8	-162	0.36	0.81	Clear
	08/01/2011		26.9	6.83	3.66	4.7	-211	0.76	2.38	Clear
	10/26/2011		26.5	6.92	2.29	1.6	-312	0.61	1.40	Clear
	2/16/2012		25.4	6.99	1.25	4.0	-243	0.33	0.81	Clear
	06/26/2012		25.3	7.32	0.88	1.5	-307	0.29	0.60	Clear
	09/13/2012		26.1	7.76	0.72	6.6	-157	0.56	0.50	Clear
LC34-IW0002D1	02/02/2011	50 to 55	24.6	7.70	2.94	6.2	-90	0.49	1.93	Clear
	03/22/2011		24.6	7.56	2.50	8.3	-121	0.39	1.62	Clear
	03/28/2011		23.8	7.59	2.63	7.5	-109	0.43	1.71	Clear
	04/07/2011		24.1	7.68	2.59	5.2	-127	0.29	1.69	Clear
	04/18/2011		25.2	7.83	1.97	6.8	-119	0.39	1.28	Clear
	08/01/2011		26.5	7.11	2.90	14.8	-250	0.53	1.89	Clear
	10/26/2011		26.6	7.57	2.73	7.1	-302	0.27	1.77	Clear
	02/16/2012		25.1	7.07	2.59	3.8	-308	0.31	1.69	Clear
	06/26/2012		25.5	7.29	2.37	2.3	-364	0.27	1.56	Clear
	09/13/2012		26.0	7.77	2.34	2.9	-276	0.23	1.59	Clear
LC34-IW0067D	02/02/2011	38 to 43	25.0	7.74	3.00	4.1	-249	0.32	1.95	Clear
	04/18/2011		25.8	7.89	1.94	5.4	-272	0.35	1.26	Clear
	10/25/2011		26.0	7.51	2.61	7.3	-245	0.09	1.70	Clear
	02/14/2012		24.3	8.52 *	2.54	1.6	-240	0.33	1.65	Clear
	06/26/2012		25.5	7.52	2.66	3.0	-298	0.17	1.73	Clear
LC34-IW0067D1	02/03/2011	63 to 73	24.6	7.53	2.73	13.6	-99	0.30	1.79	Clear
	04/18/2011		25.9	7.76	1.96	17.2	-154	0.38	1.28	Clear
	10/25/2011		25.9	7.50	2.66	74.8	-142	0.13	1.73	Cloudy
	02/14/2012		24.1	7.63 *	2.58	9.7	-60	0.39	1.67	Clear
	06/26/2012		25.2	7.41	2.67	125.0	-146	0.14	1.74	White and cloudy

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-IW0070D	02/02/2011	38 to 43	25.1	7.74	3.08	2.4	-242	0.46	2.00	Clear
	04/18/2011		25.3	7.83	1.90	6.0	-220	0.43	1.24	Clear
	10/25/2011		26.2	7.64	2.67	4.3	-281	0.08	1.74	Clear
	02/15/2012		25.2	7.73	2.54	5.7	-170	0.30	1.65	Clear
	06/26/2012		25.4	7.49	2.71	3.8	-281	0.42	1.77	Clear
LC34-IW0070D1	02/02/2011	65 to 75	24.7	7.69	3.10	3.5	-151	0.38	2.03	Clear
	04/18/2011		25.7	7.80	2.02	13.7	-123	0.47	1.31	Clear
	10/25/2011		26.1	7.56	2.69	8.0	-185	0.10	1.75	Clear
	02/15/2012		25.0	7.67	2.57	3.0	-24	0.31	1.67	Clear
	06/26/2012		25.0	7.42	2.69	3.1	-90	0.42	1.75	Clear
LC34-IW0071D	02/02/2011	38 to 43	23.1	7.54	2.33	1.0	-137	0.17	1.57	Clear
	04/18/2011		24.7	7.91	1.84	0.7	-172	0.68	1.19	Clear
	10/25/2011		24.3	7.54	2.39	1.1	-222	0.12	1.56	Clear
	02/15/2012		23.4	7.66	2.28	0.6	-88	0.31	1.48	Clear
	06/26/2012		24.0	7.42	2.49	1.6	-242	0.13	1.62	Clear
LC34-IW0071D1	02/02/2011	65 to 75	23.0	7.65	2.47	0.7	-112	0.19	1.67	Clear
	04/18/2011		25.0	7.82	1.92	7.6	-124	0.34	1.25	Clear
	10/25/2011		24.5	7.58	2.55	4.2	-161	0.09	1.66	Clear
	02/14/2012		23.2	7.63	2.49	1.8	-73	0.27	1.62	Clear
	06/26/2012		24.0	7.42	2.63	1.6	-151	0.15	1.71	Clear
LC34-IW0076	02/02/2011	70 to 80	24.3	7.69	2.95	15.6	0	1.95	1.95	Clear
	04/18/2011		25.2	7.83	2.38	7.9	-182	0.22	1.55	Clear
	08/01/2011		25.9	7.78	2.53	14.4	-152	1.79	1.64	Clear
	10/25/2011		27.0	7.43	2.60	38.7	-200	0.07	1.69	Cloudy
	02/15/2012		24.6	7.12	2.39	16.4	-63	0.51	1.56	Clear
	06/26/2012		28.2	6.60	2.34	5.9	-207	0.48	1.55	Clear
	09/13/2012		26.3	7.80	2.54	6.9	-140	0.49	1.67	Clear

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-RW0007	02/02/2011	35 to 42	24.1	7.90	2.69	10.0	7	0.16	1.78	Clear
	03/22/2011		24.2	7.40	2.28	3.0	-109	2.34	1.48	Clear
	03/28/2011		23.2	7.43	2.60	3.7	-136	1.69	1.69	Clear
	04/07/2011		24.2	7.57	2.35	0.8	-154	0.38	1.52	Clear
	04/19/2011		24.7	7.42	1.90	1.4	-166	0.41	1.24	Clear
	07/07/2011		25.3	7.22	2.20	4.3	-124	0.27	1.43	Clear
	08/01/2011		26.6	6.98	2.74	3.6	-208	0.39	1.78	Clear
	08/12/2011		26.5	8.21	1.83	4.8	-238	0.14	1.16	Clear
	08/18/2011		26.5	6.80	2.39	7.8	-280	0.49	1.55	Clear
	08/24/2011		26.7	6.75	2.73	1.8	-252	0.63	1.77	Clear
	08/31/2011		26.5	7.34	2.58	1.6	-290	0.17	1.63	Clear
	09/15/2011		27.1	7.06	2.66	0.8	-303	1.67	1.73	Clear
	09/28/2011		26.4	7.11	2.45	1.6	-284	0.66	1.60	Clear
	10/13/2011		25.7	7.15	2.49	2.3	-315	0.20	1.62	Clear
	10/26/2011		25.3	7.04	1.22	0.6	-314	1.19	0.79	Clear
	11/10/2011		25.3	7.26	2.45	1.5	-333	0.21	1.59	Clear
	11/22/2011		25.6	7.19	2.46	0.8	-539	0.15	1.60	Clear
	12/15/2011		25.0	7.18	2.06	1.0	-320	0.12	1.34	Clear
	01/05/2012		23.2	7.11	1.40	3.0	-255	0.50	0.91	Clear
	01/26/2012		24.5	7.23	1.99	0.8	-260	1.06	1.29	Clear
	02/14/2012		24.0	8.84 *	2.03	0.7	-252	0.53	1.32	Clear
	03/15/2012		25.7	7.78	0.79	5.6	-222	0.32	0.52	Clear
	04/19/2012		24.7	7.46	2.04	3.6	-234	1.10	1.33	Clear
	05/17/2012		24.1	10.54 J	2.09	1.3	-312	1.58 J	1.36	Clear
	06/26/2012		26.7	7.12	2.07	3.1	-286	0.33	1.35	Clear
	07/19/2012		25.6	7.39	1.94	0.1	-324	0.38	1.26	Clear
	08/16/2012		26.2	7.42	2.81	1.2	-324	0.09	1.83	Clear
	09/13/2012		26.5	7.85	0.92	2.9	-241	0.25	0.60	Clear

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-RW0008	02/02/2011	47 to 57	24.5	8.76	2.30	11.0	-91	0.16	1.51	Clear
	03/22/2011		24.5	7.56	2.40	4.1	-102	1.02	1.56	Clear
	03/28/2011		23.2	7.60	2.56	7.9	-117	0.55	1.66	Clear
	04/07/2011		24.2	7.68	2.46	0.8	-113	0.61	1.60	Clear
	04/19/2011		25.2	7.68	1.93	1.9	-156	0.40	1.25	Clear
	07/07/2011		25.2	7.35	2.35	8.7	-209	0.27	1.53	Clear
	08/01/2011		26.3	7.32	2.53	3.3	-226	0.25	1.64	Clear
	08/12/2011		26.2	8.11	2.87	8.3	-262	0.26	1.82	Clear
	08/18/2011		26.5	6.98	2.66	3.7	-246	0.34	1.73	Clear
	08/24/2011		27.3	7.01	2.73	3.1	-250	0.52	1.78	Clear
	08/31/2011		26.6	7.80	2.65	2.5	-294	0.07	1.67	Clear
	09/15/2011		26.8	7.21	2.66	0.9	-320	1.03	1.73	Clear
	09/28/2011		26.4	7.21	2.47	1.3	-275	0.59	1.61	Clear
	10/13/2011		25.6	7.34	2.65	1.7	-305	0.21	1.72	Clear
	10/26/2011		24.9	7.20	2.66	1.7	-323	0.31	1.73	Clear
	11/10/2011		35.1	7.42	2.59	1.4	-349	0.21	1.68	Clear
	11/22/2011		25.7	7.31	2.58	0.8	-346	0.14	1.68	Clear
	12/15/2011		24.6	7.42	2.55	1.4	-329	0.15	1.66	Clear Grey
	01/05/2012		23.0	7.26	2.42	0.8	-284	0.50	1.57	Clear
	01/26/2012		24.5	7.36	2.35	0.6	-293	0.80	1.53	Clear
	02/14/2012		24.0	8.82 *	2.54	0.6	-255	0.49	1.65	Clear
	03/15/2012		25.9	7.52	2.49	0.8	-232	0.38	1.62	Clear
	04/19/2012		24.5	7.65	2.42	1.0	-220	1.08	1.57	Clear
	05/17/2012		23.8	10.69 J	2.47	2.4	-320	1.55 J	1.60	Clear
	06/26/2012		25.5	7.07	2.70	2.5	-270	0.38	1.75	Clear
	07/19/2012		25.8	7.51	2.51	0.1	-306	0.32	1.63	Clear
	08/16/2012		25.7	7.64	3.64	1.6	-341	0.36	2.37	Clear
	09/13/2012		26.7	7.77	2.56	5.2	-240	0.40	1.67	Clear

Table E-1-9. Summary of Groundwater Sampling Results: Field Geochemical Parameters
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	Temperature (°C)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Color
LC34-IJ0015	02/03/2011	32 to 42	24.1	7.56	2.65	15.0	-162	0.26	1.76	Clear
LC34-IJ0016	02/03/2011	47 to 57	24.2	7.63	2.78	13.7	-133	0.28	1.84	Clear
LC34-IJ0019	02/03/2011	32 to 42	24.1	7.64	1.97	12.0	-160	0.31	1.30	Clear
LC34-IJ0020	02/03/2011	47 to 57	23.4	7.68	2.36	13.0	-121	0.35	1.58	Clear

Notes:

1. ft BLS indicates feet below land surface.
2. °C indicates degree Celsius.
3. pH is a measure of the activity of the hydrogen ion.
4. S.U. indicates standard units.
5. mS/cm indicates microSiemens per centimeter.
6. NTU indicates Nephelometric Turbidity Unit.
7. mV indicates millivolts.
8. mg/L indicates milligram per liter.
9. g/L indicates gram per liter.
10. * indicates malfunctioning of probe.
11. J indicates an estimated value (qualified with continuing calibration verification).
12. Results not displayed to a set number of significant digits.

Table E-1-10. Summary of Groundwater Sampling Results: *Dehalococcoides* and *Vinyl Chloride Reductase*
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Screen Interval (ft BLS)	*Dehalococcoides* (gene copies/L)	*Vinyl Chloride Reductase* (gene copies/L)
LC34-BW0001C	04/18/2011	37 to 40	**7.0E+05**	NA
	10/25/2011		**6.0E+06**	NA
	2/16/2012		**6.0E+06**	NA
	06/26/2012		**1.0E+08**	**1.0E+08**
	09/13/2012		**1.0E+08**	**2.0E+08**
LC34-BW0001E	04/18/2011	51 to 54	4.0E+03 U	NA
	10/25/2011		**7.0E+06**	NA
	2/16/2012		**3.0E+07**	NA
	06/26/2012		**2.0E+07**	**2.0E+07**
	09/13/2012		**2.0E+07**	**3.0E+07**
LC34-BW0003C	04/19/2011	37 to 40	**5.0E+07**	NA
	10/27/2011		**5.0E+08**	NA
	2/15/2012		**3.0E+08**	NA
	06/27/2012		**2.0E+08**	**9.0E+07**
	09/13/2012		**1.0E+08**	**1.0E+08**
LC34-BW0003E	04/19/2011	51 to 54	**1.0E+03 J**	NA
	10/27/2011		**2.0E+06**	NA
	2/15/2012		**1.0E+06**	NA
	06/27/2012		**3.0E+06**	**8.0E+06**
	09/13/2012		**2.0E+06**	**5.0E+06**
LC34-RW0007	04/19/2011	35 to 42	**1.0E+05**	**5.0E+03**
	10/26/2011		**1.0E+08**	**2.0E+06**
	2/14/2012		**2.0E+08**	**3.0E+07**
	06/26/2012		**2.0E+07**	**2.0E+07**
	09/13/2012		**2.0E+07**	**1.0E+07**
LC34-RW0008	04/19/2011	47 to 57	**3.0E+04**	4.0E+03 U
	10/26/2011		**3.0E+08**	**5.0E+07**
	2/14/2012		**1.0E+08**	**3.0E+07**
	06/26/2012		**9.0E+07**	**1.0E+08**
	09/13/2012		**6.0E+07**	**6.0E+07**

Notes:

1. ft BLS indicates feet below land surface.
2. gene copies/L indicates gene copies per liter.
3. U indicates not detected, associated value is the quantitation limit.
4. J indicates values is between the method detection limit and the quantitation limit.
5. NA indicates not analyzed.
6. **Bold** indicates the result was detected above method detection limit (MDL).
7. Results not displayed to a set number of significant digits.

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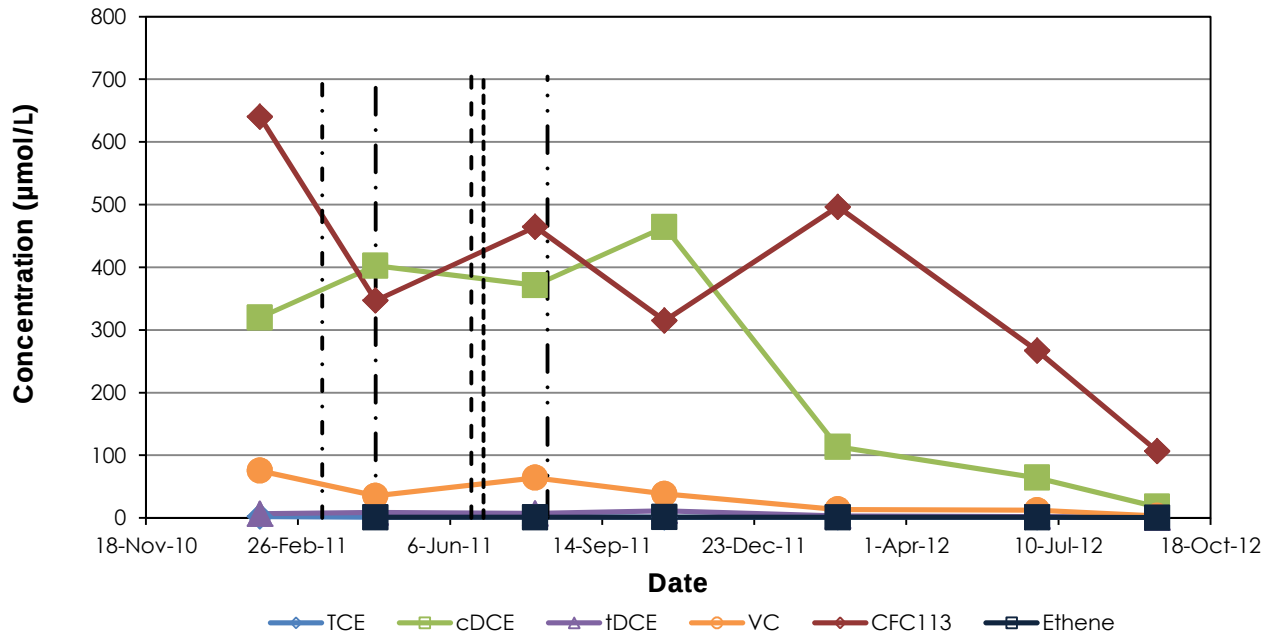
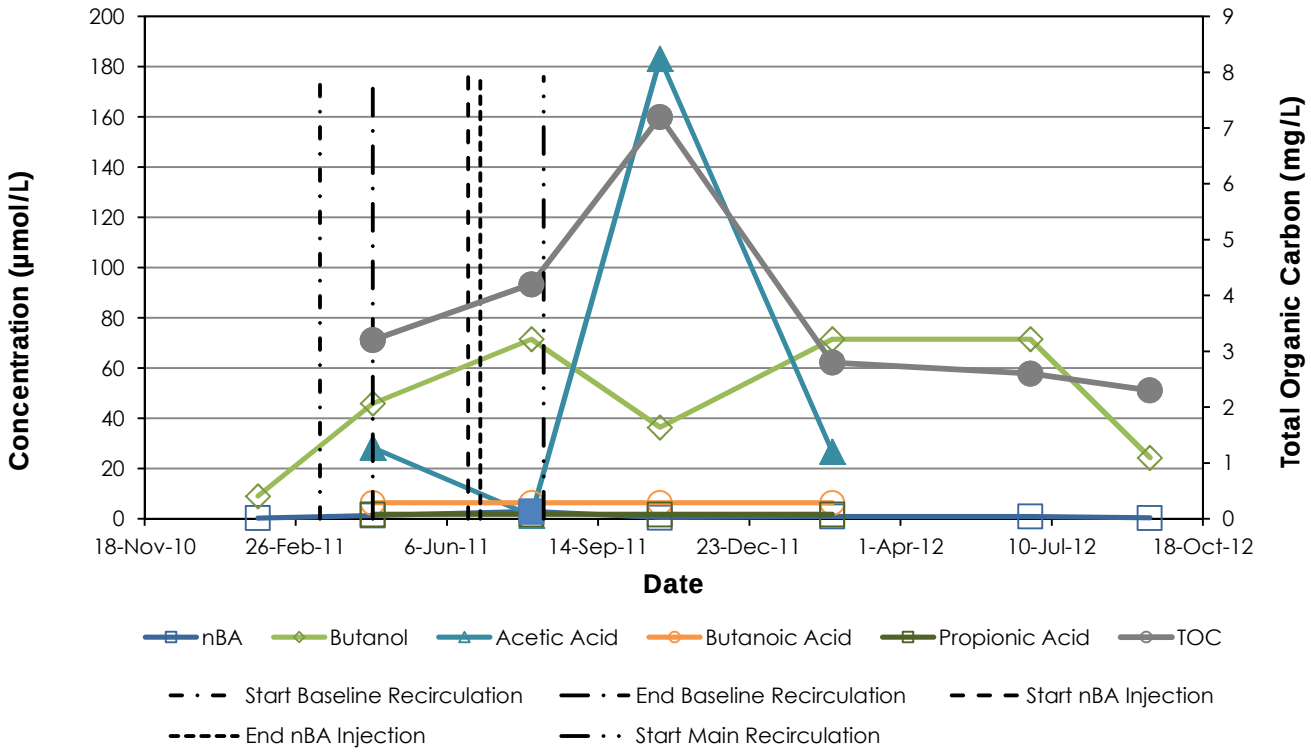
ATTACHMENT E-2

TIME-TREND PLOTS OF DATA BY WELL

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0001A - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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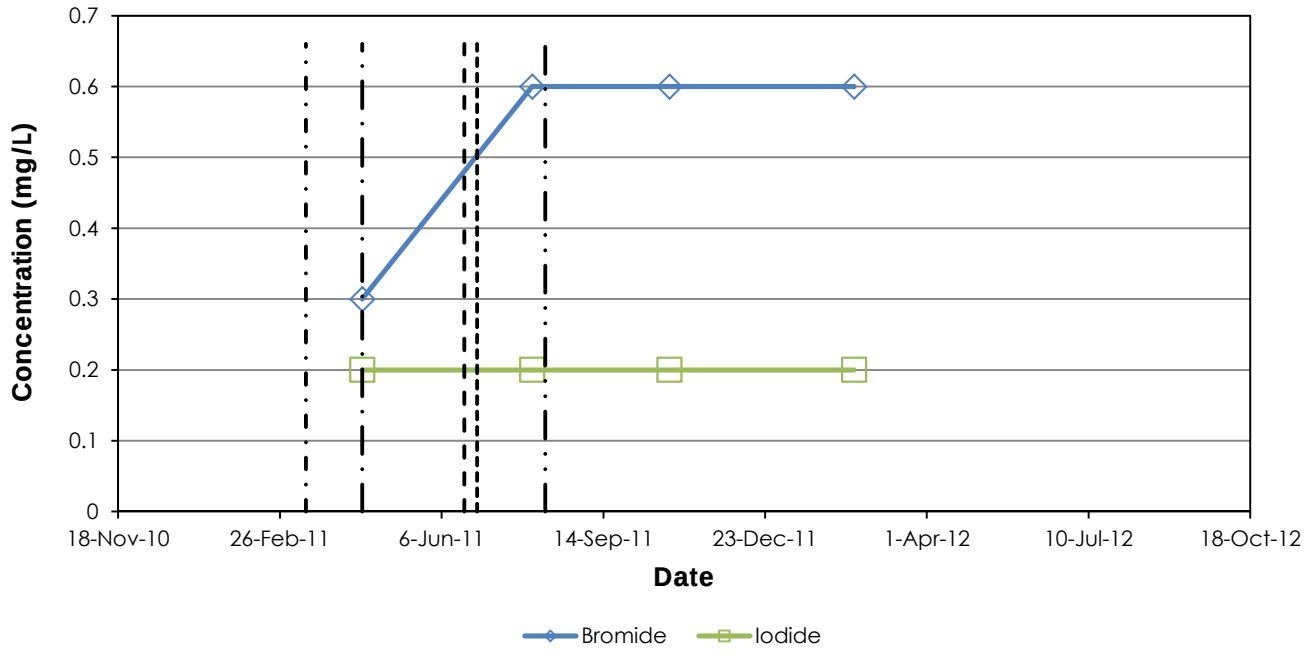
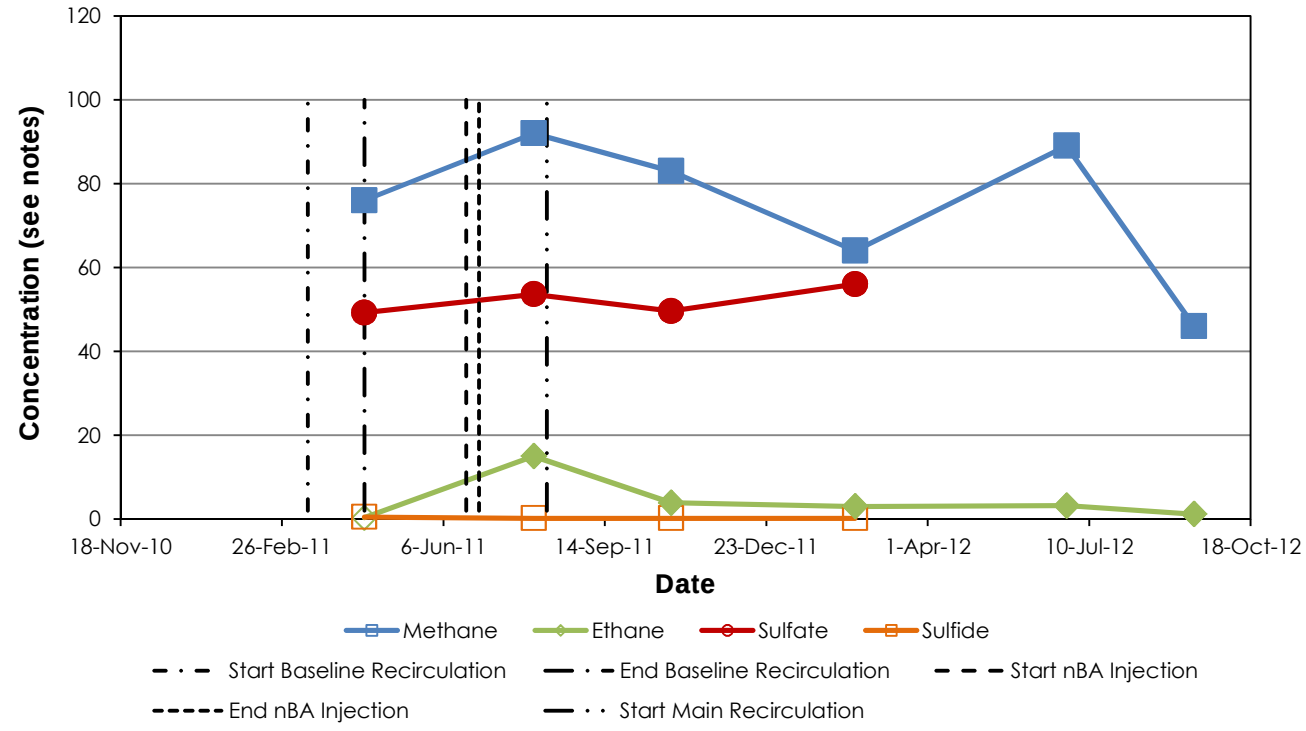
Figure **E-2-1a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0001A.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0001A - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-1b**

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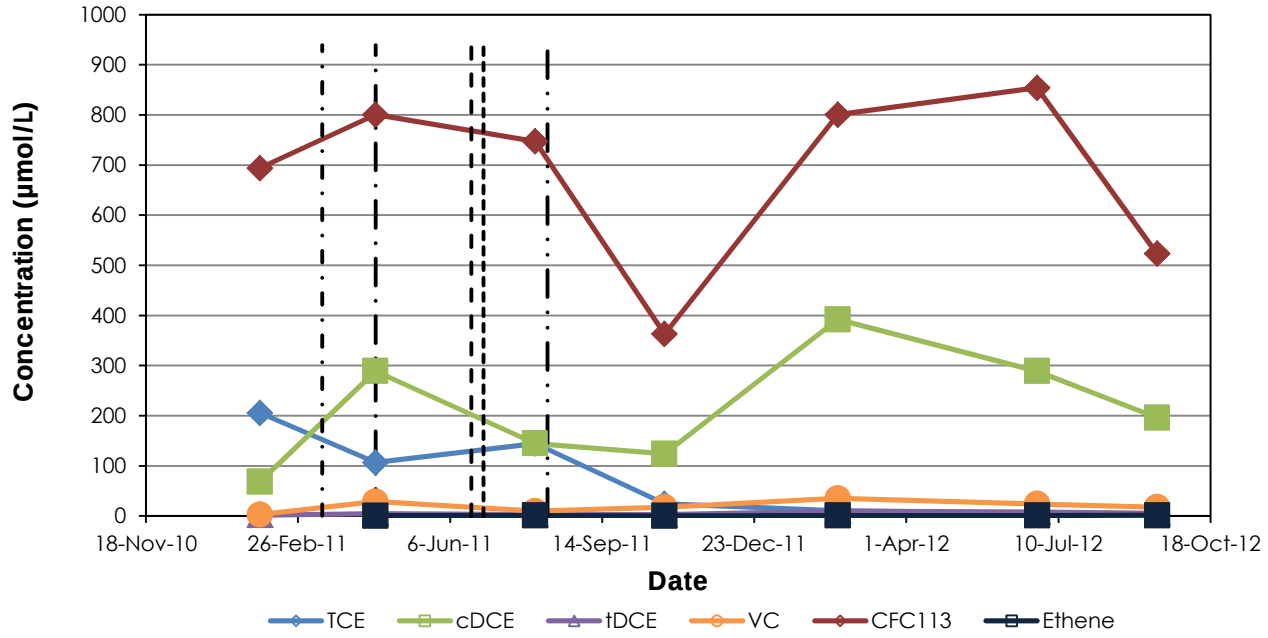
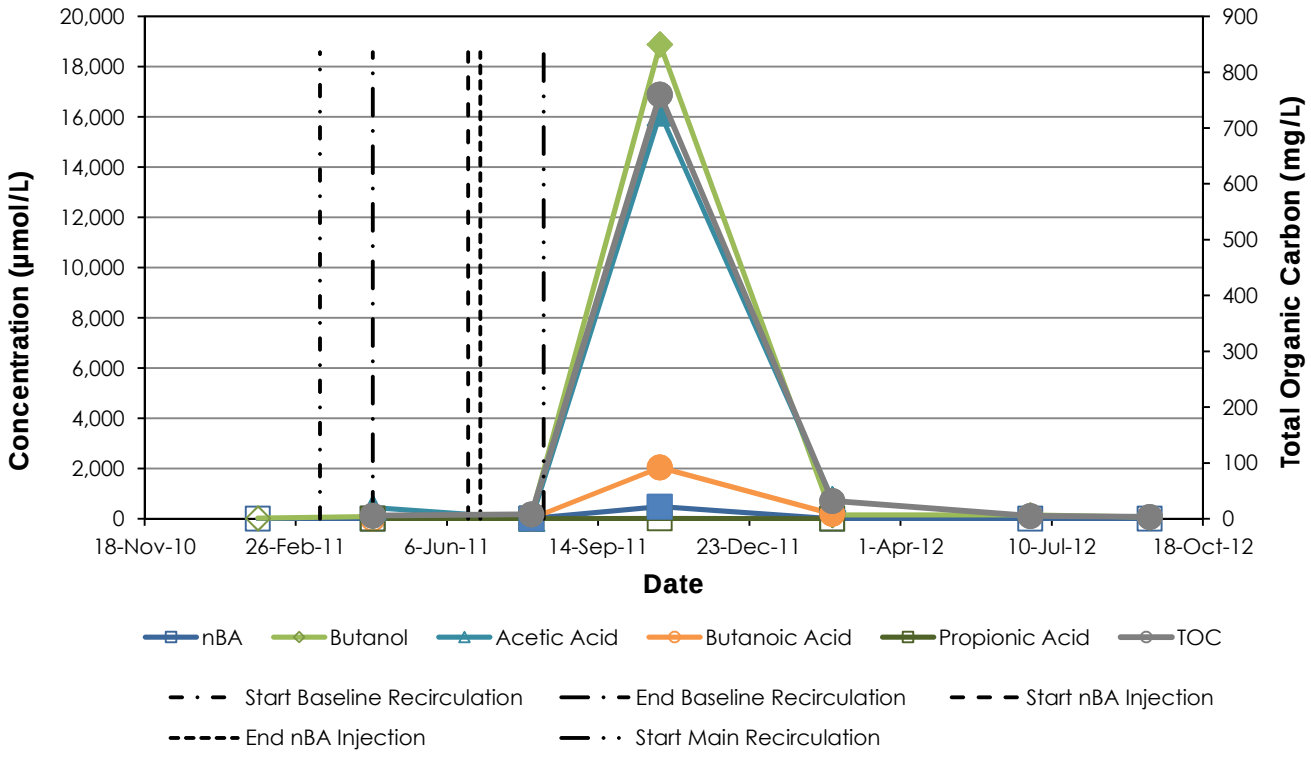
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0001A.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0001B - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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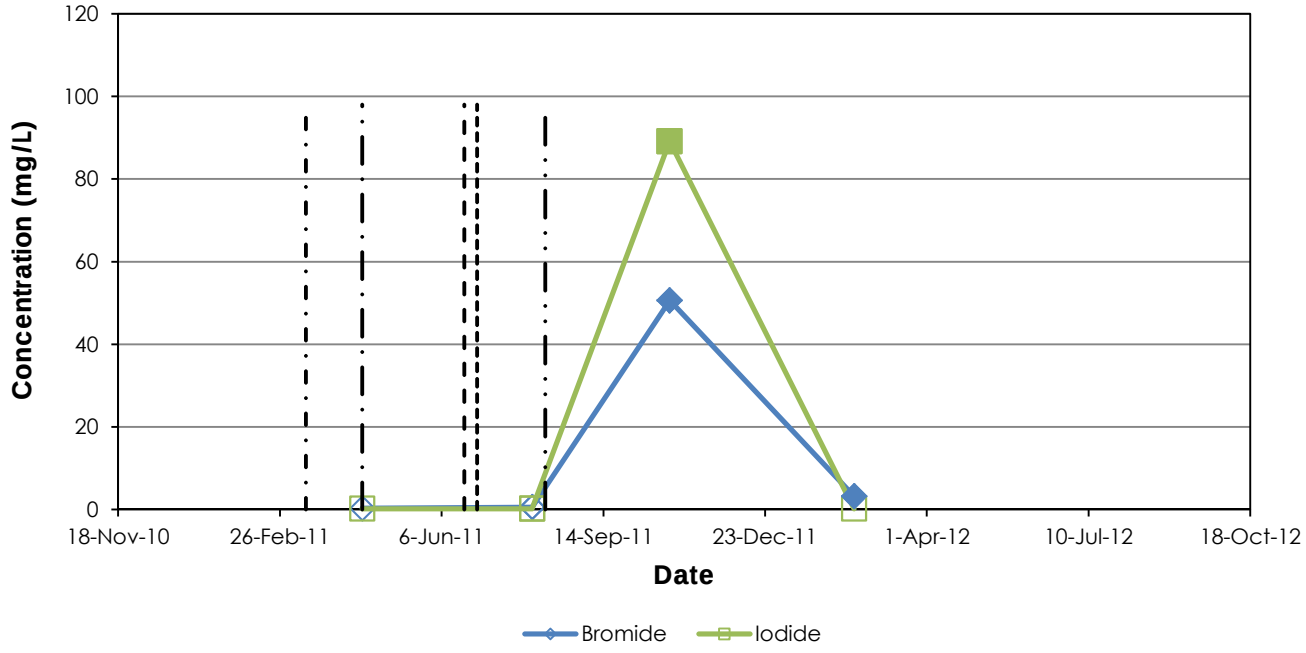
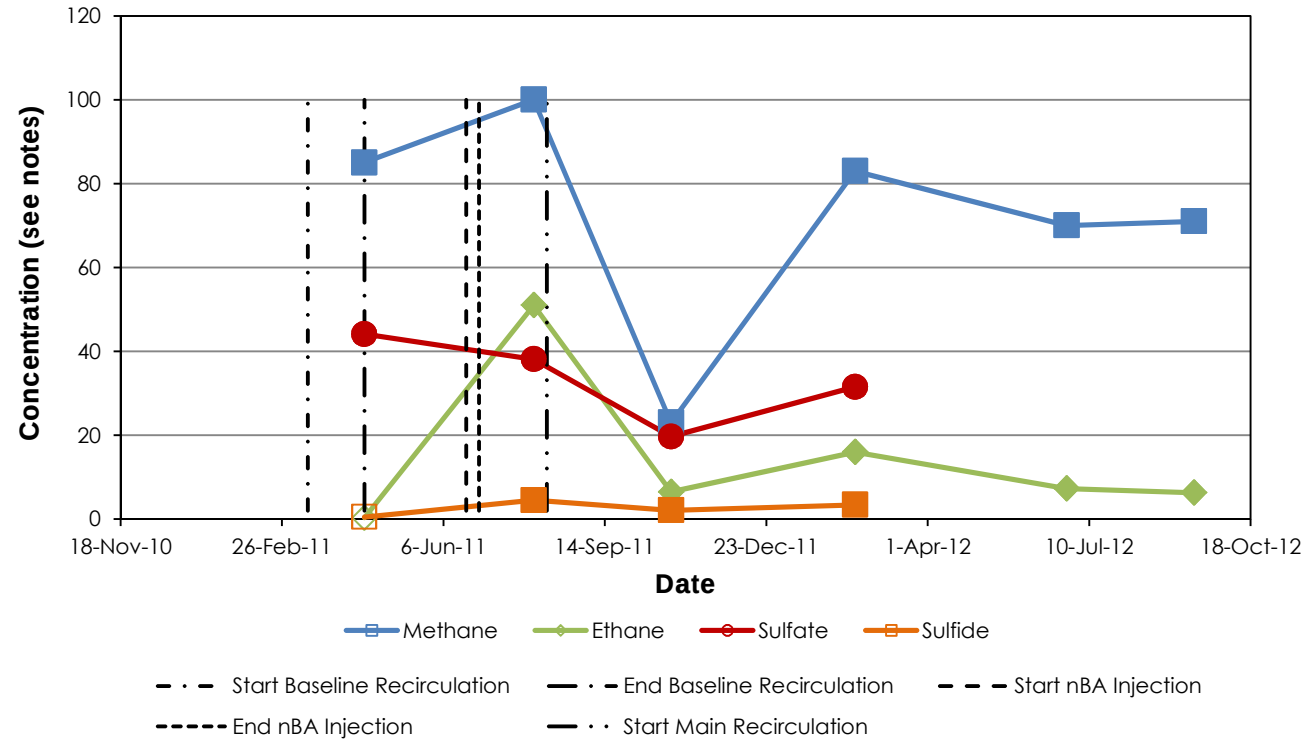
Figure **E-2-2a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0001B.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0001B - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-2b**

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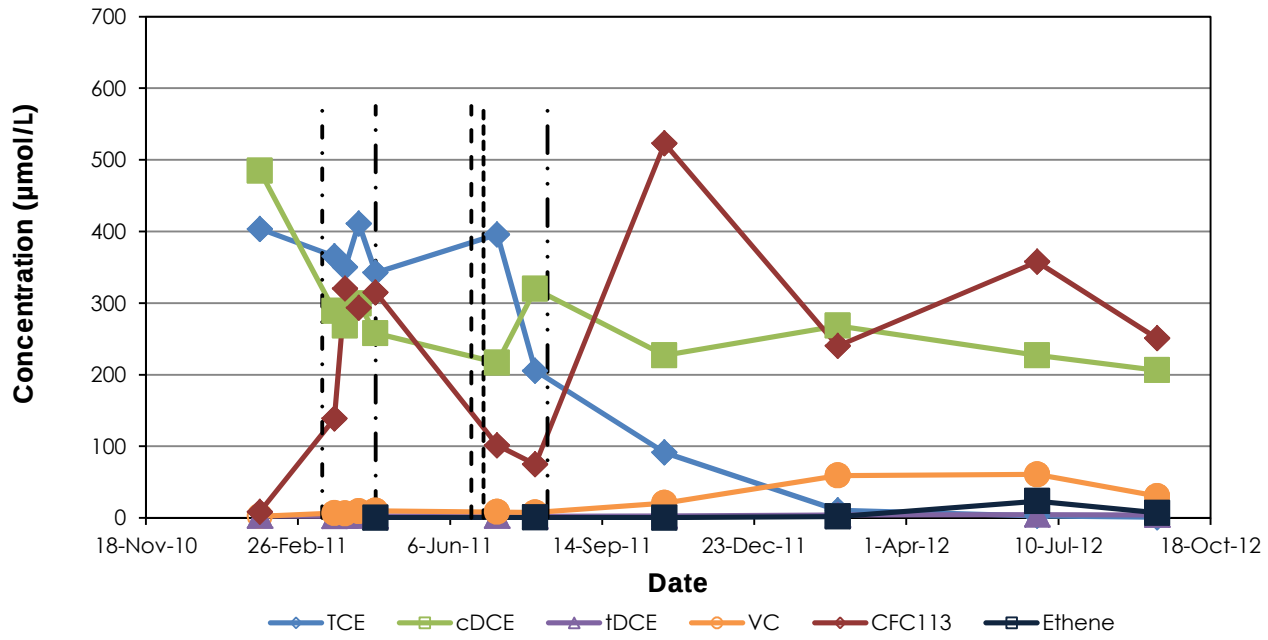
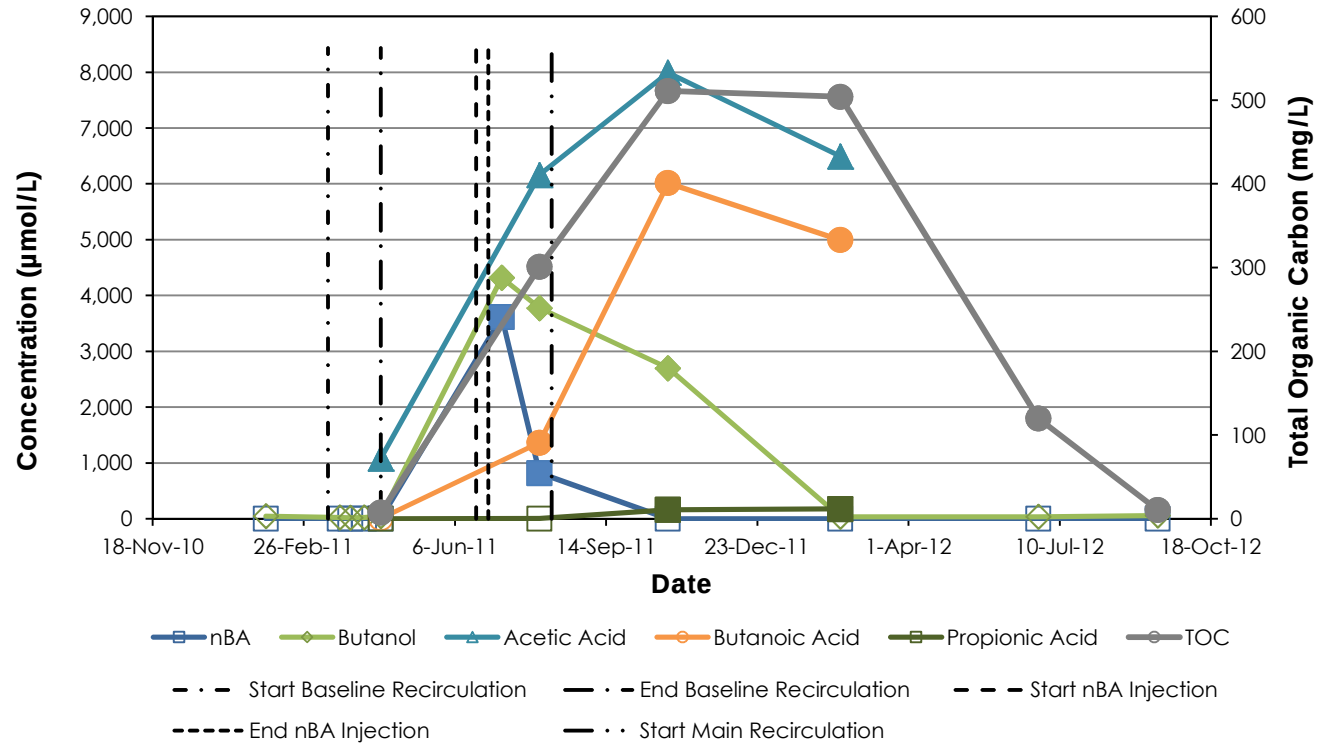
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0001B.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0001C - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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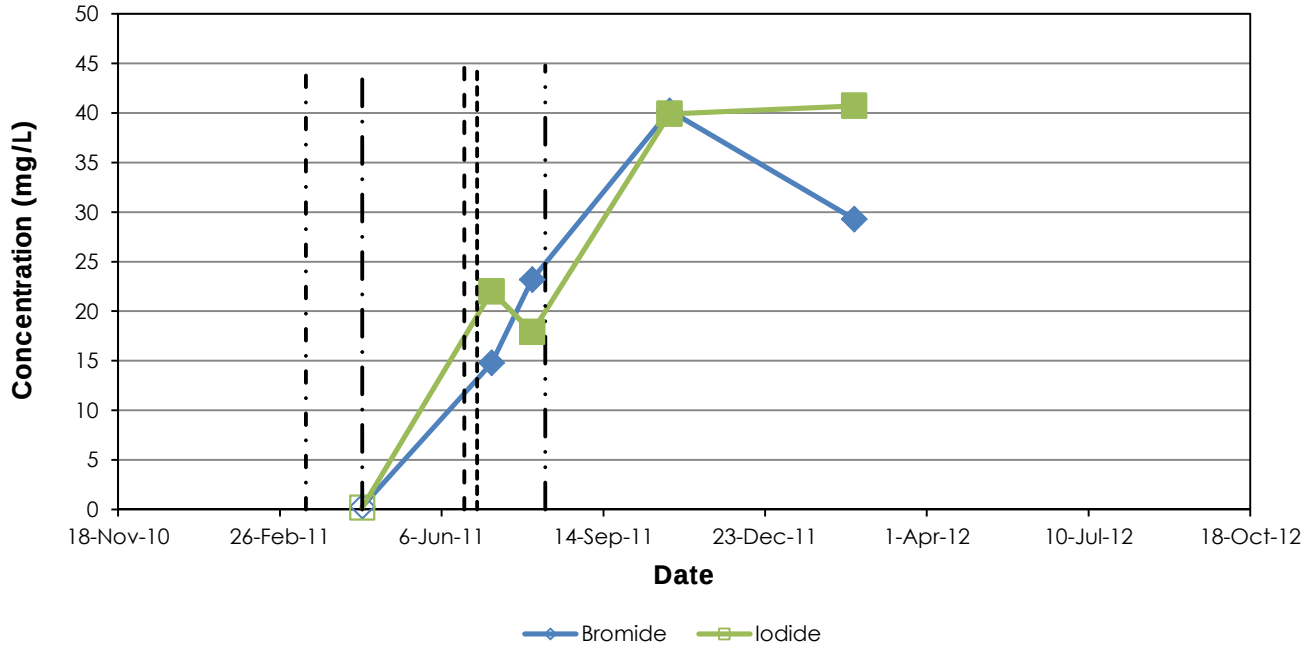
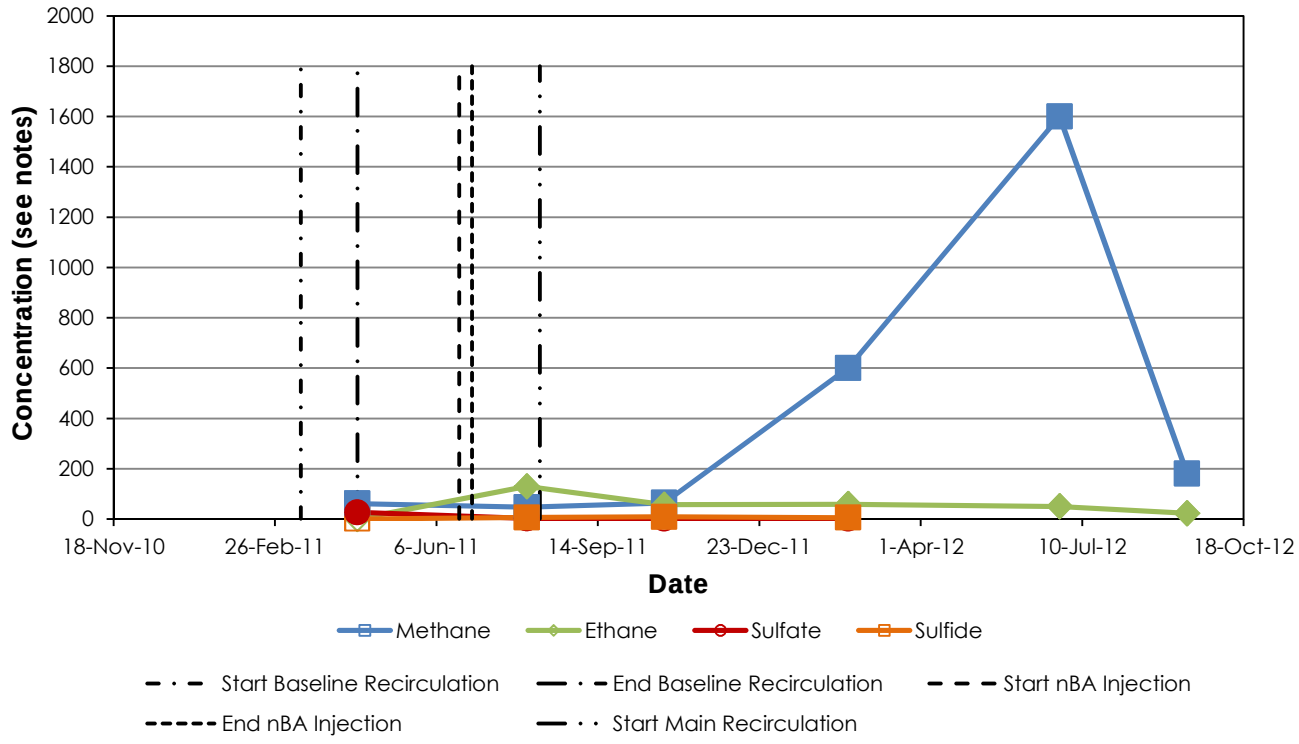
Figure **E-2-3a**

P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0001C.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0001C - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-3b**

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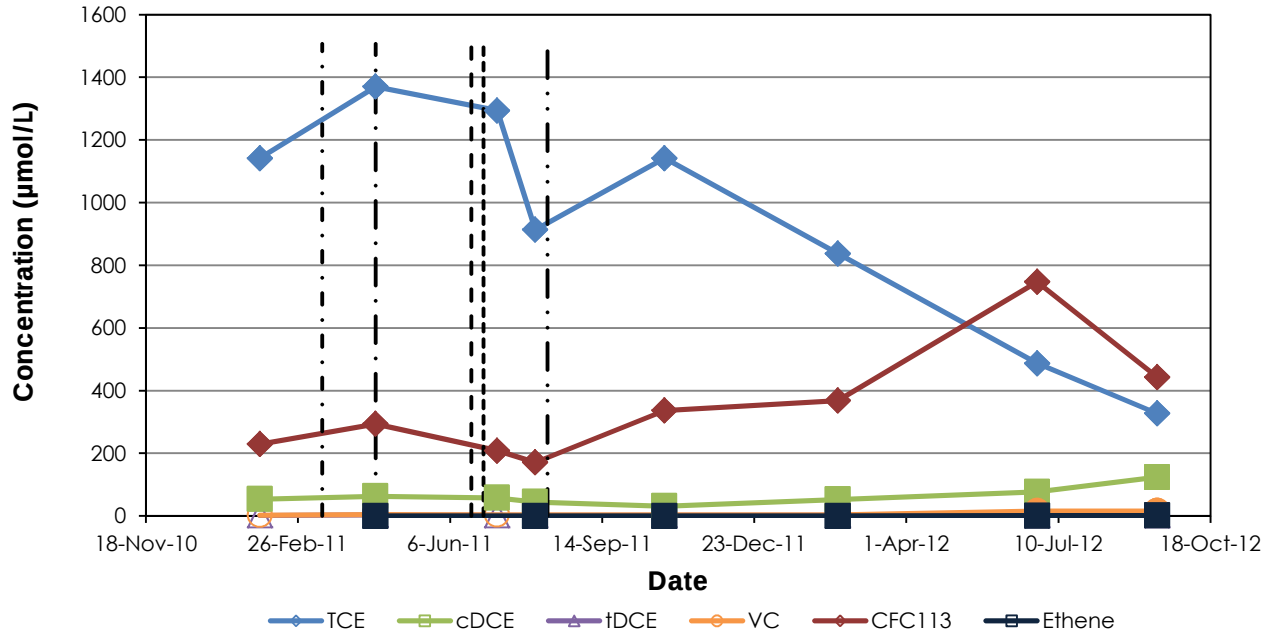
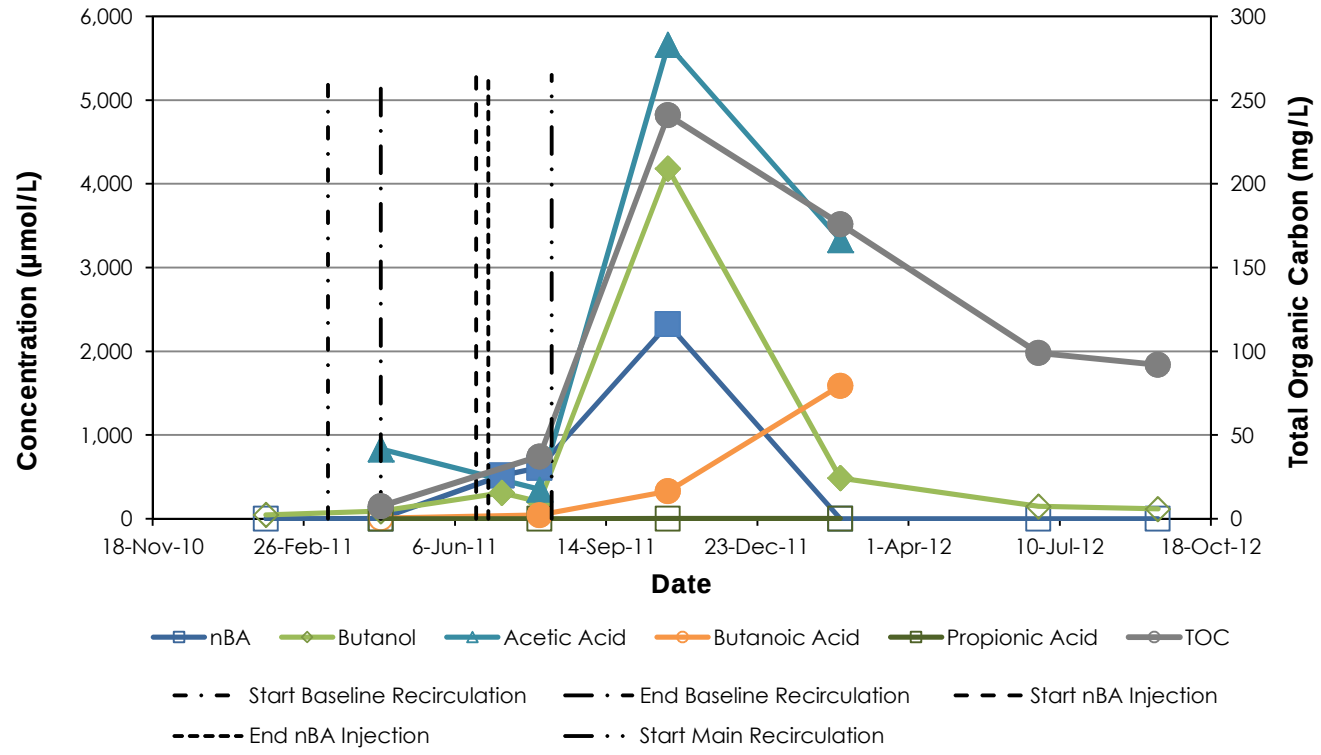
P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0001C.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0001D - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

Launch Complex 34, Cape Canaveral, FL

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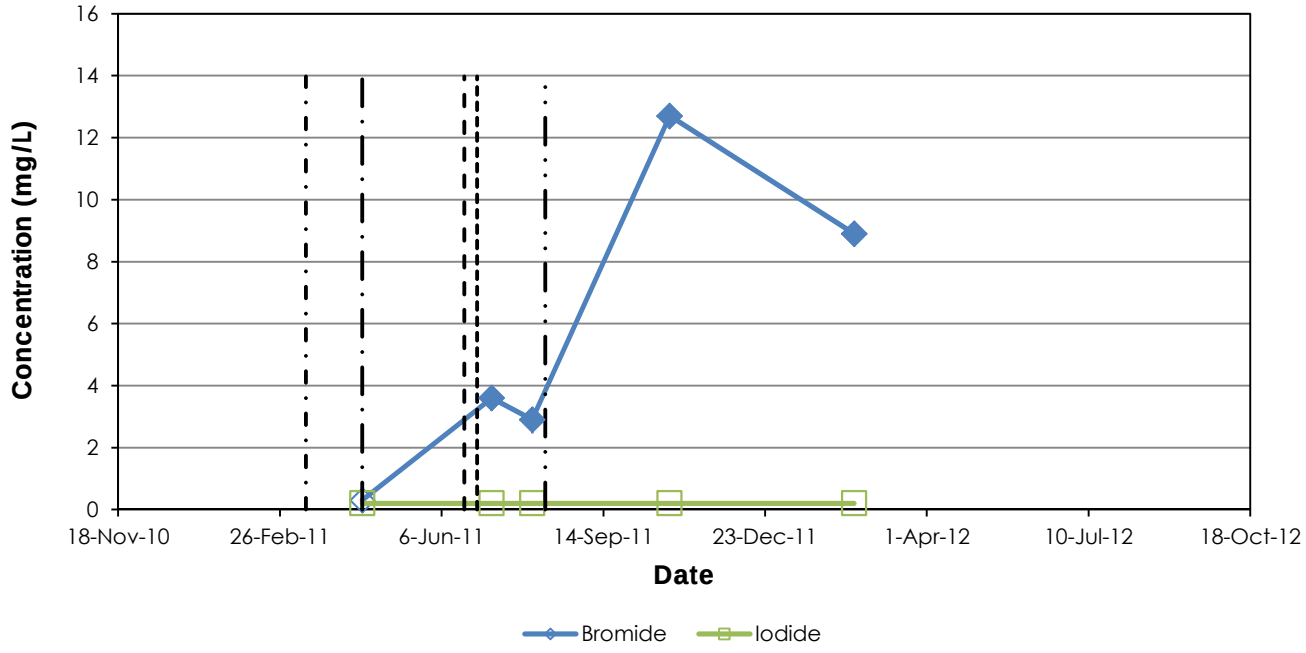
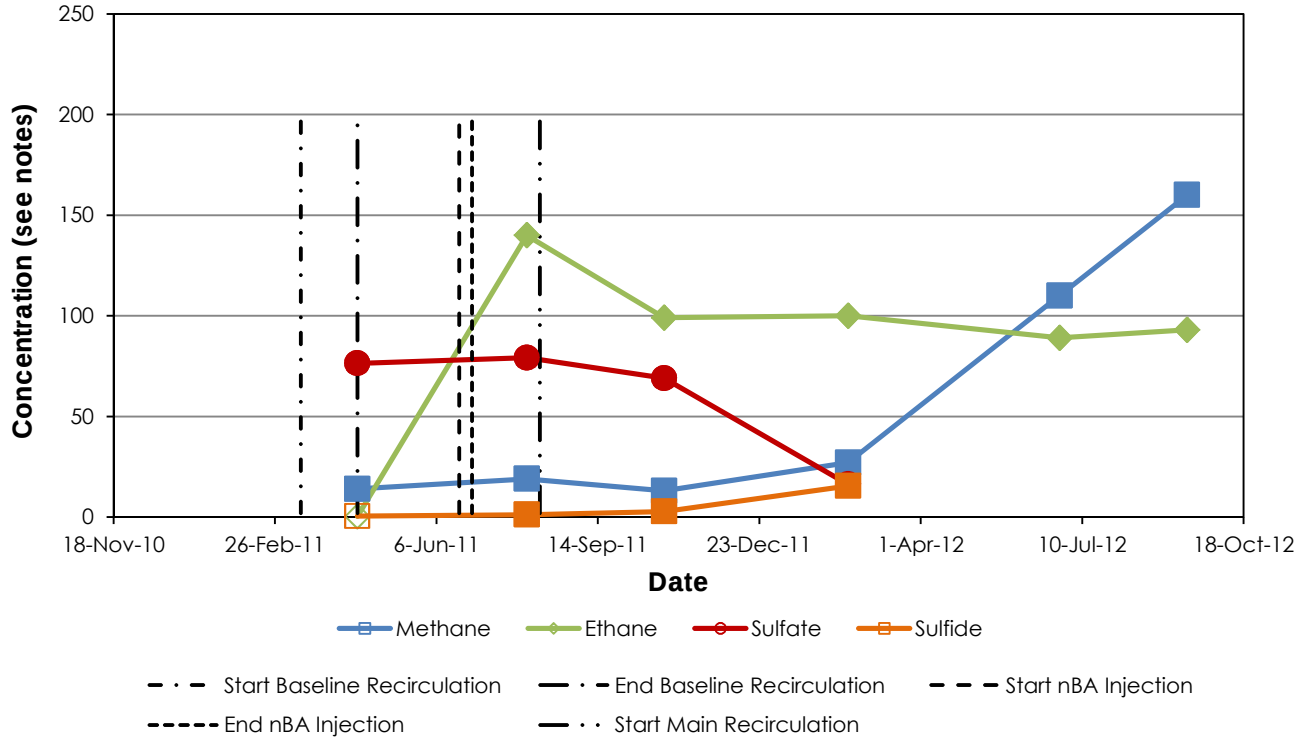
Figure **E-2-4a**

P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0001D.xlsx]Plot 2

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0001D - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-4b**

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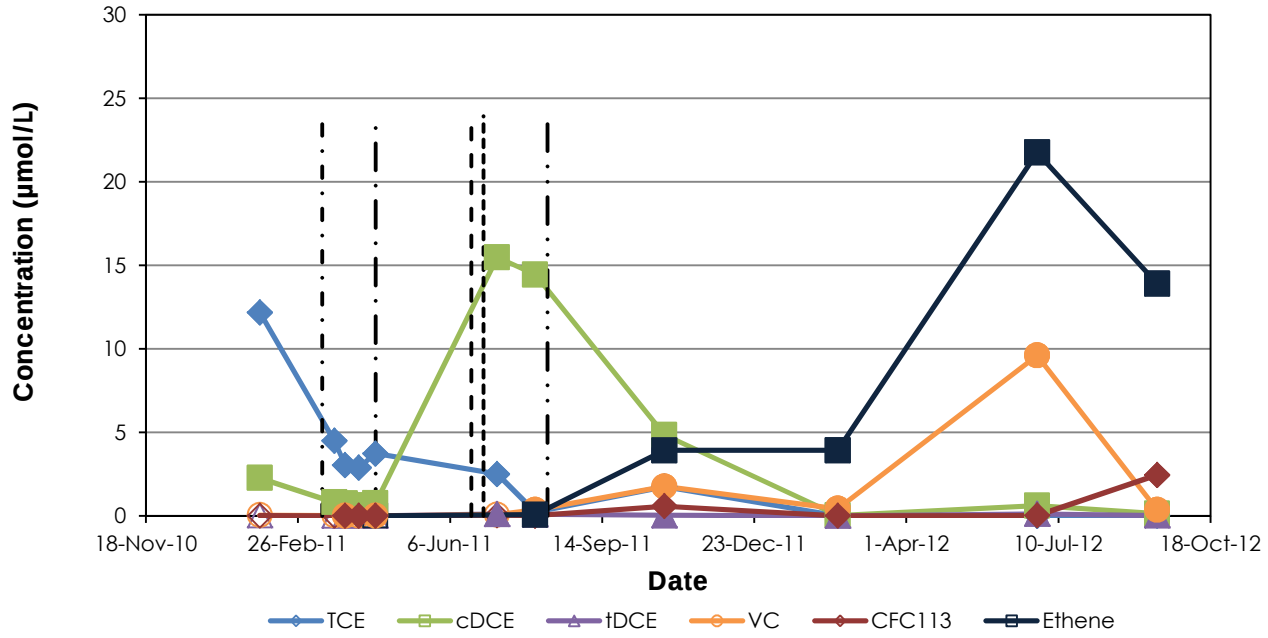
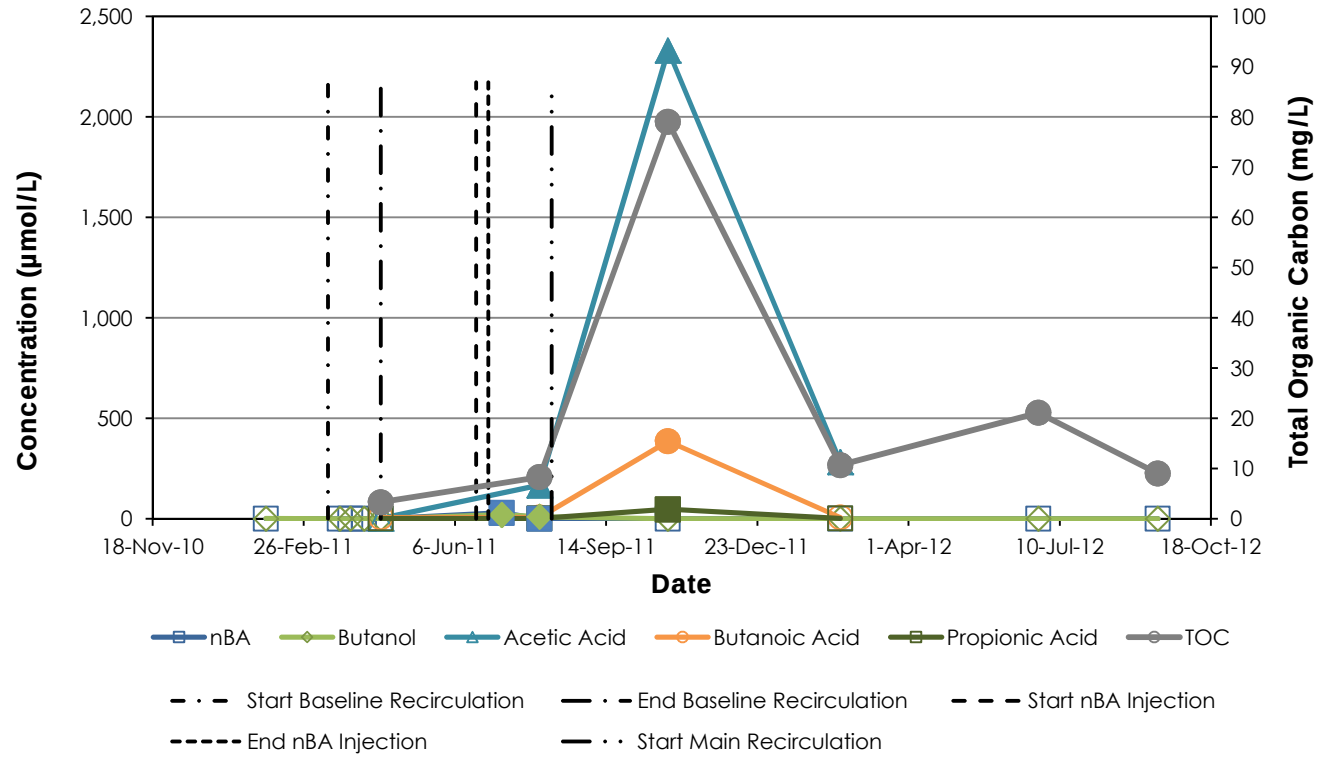
P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0001D.xlsx]Plot 2

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0001E - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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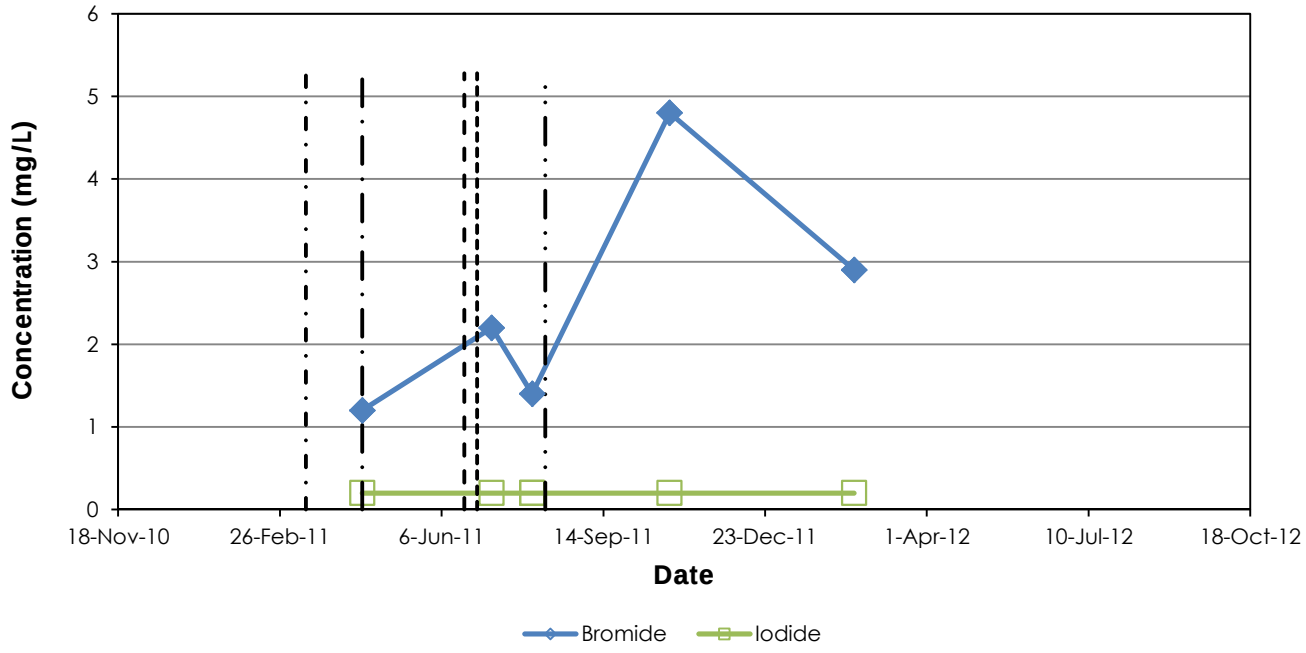
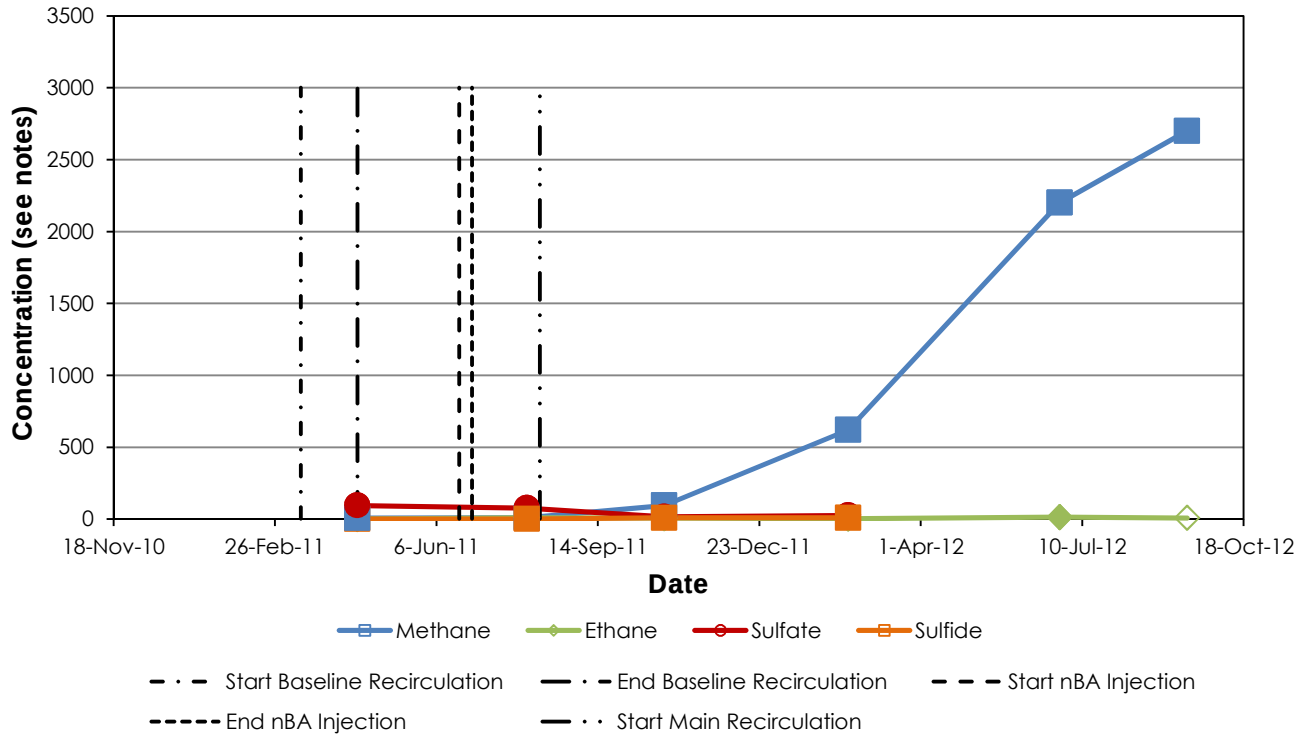
Figure **E-2-5a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0001E.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0001E - Tracer and Geochemical Parameter Time Trends

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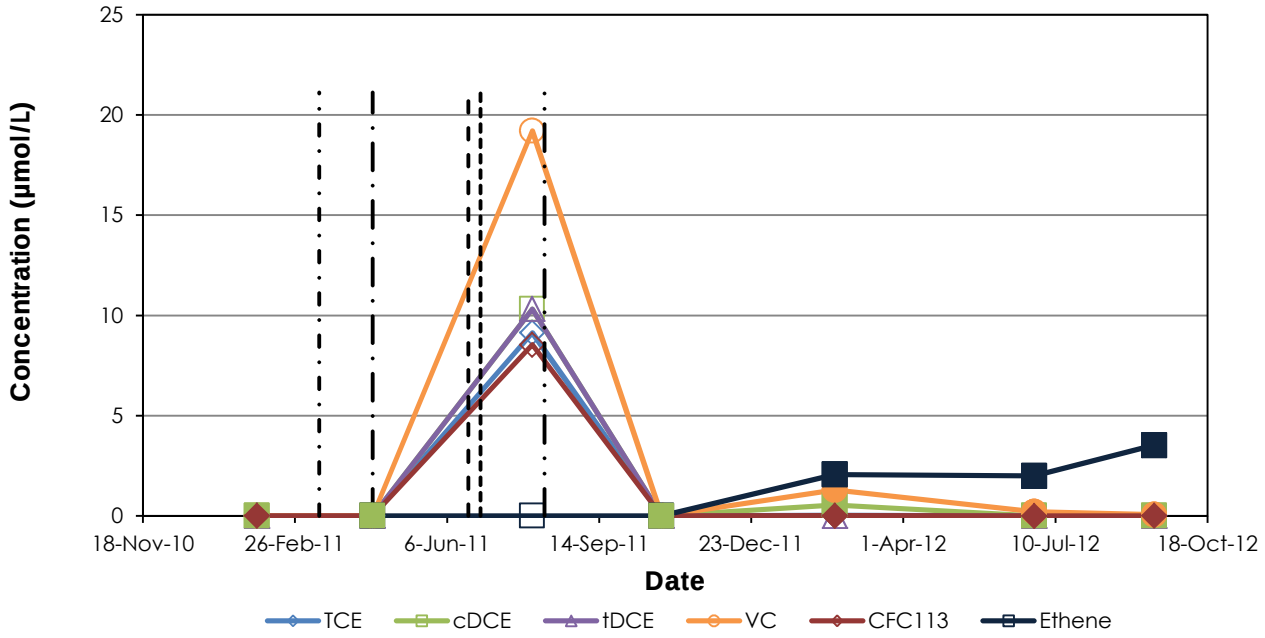
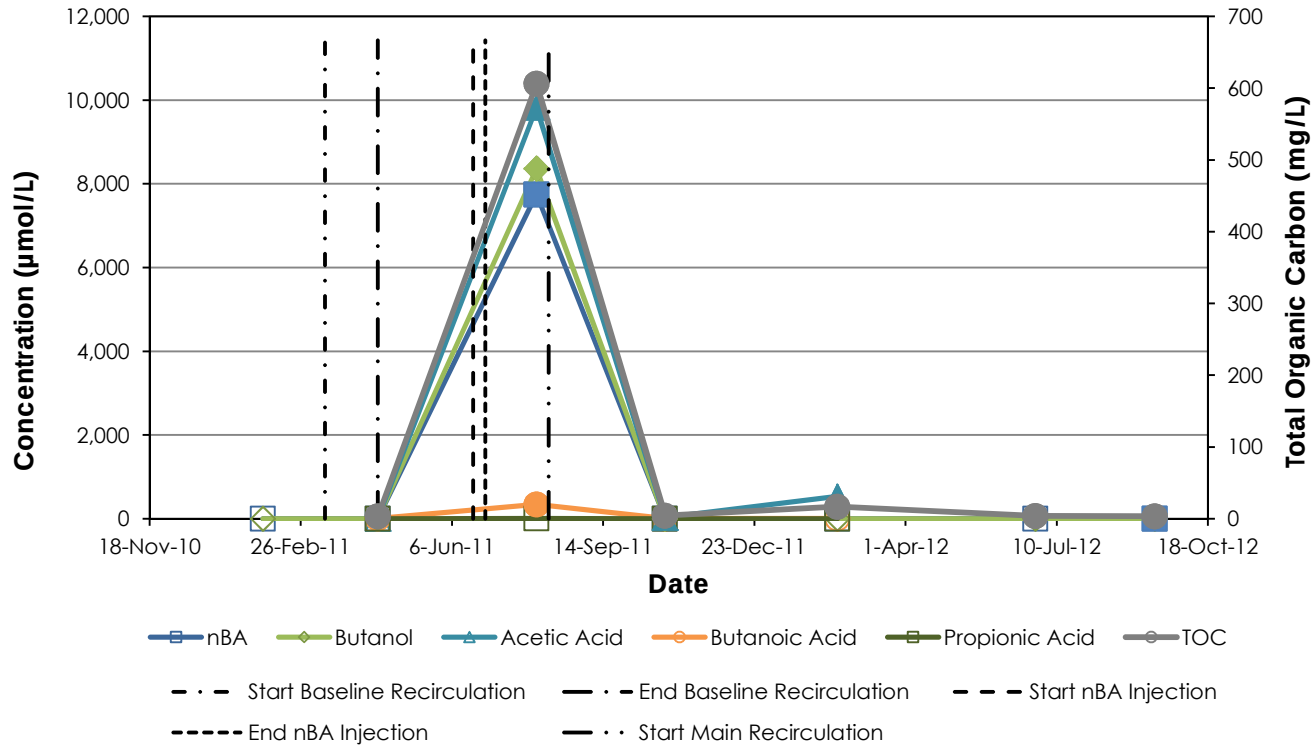
Figure **E-2-5b**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0001E.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0001F - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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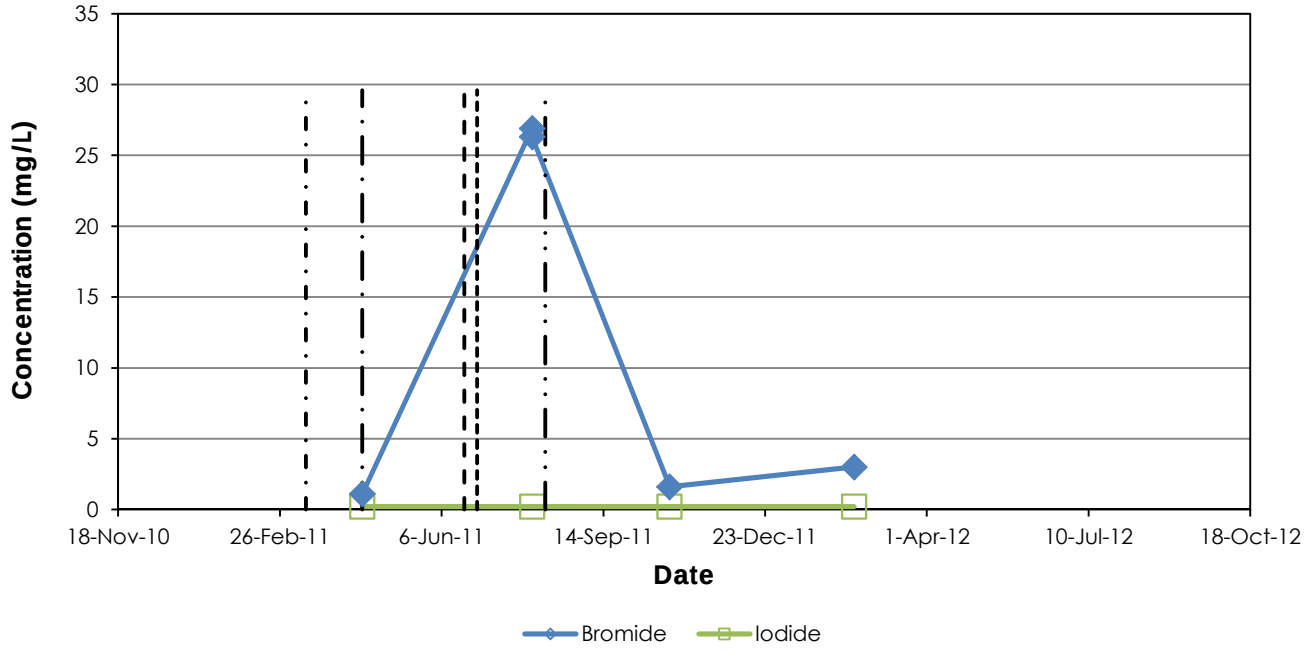
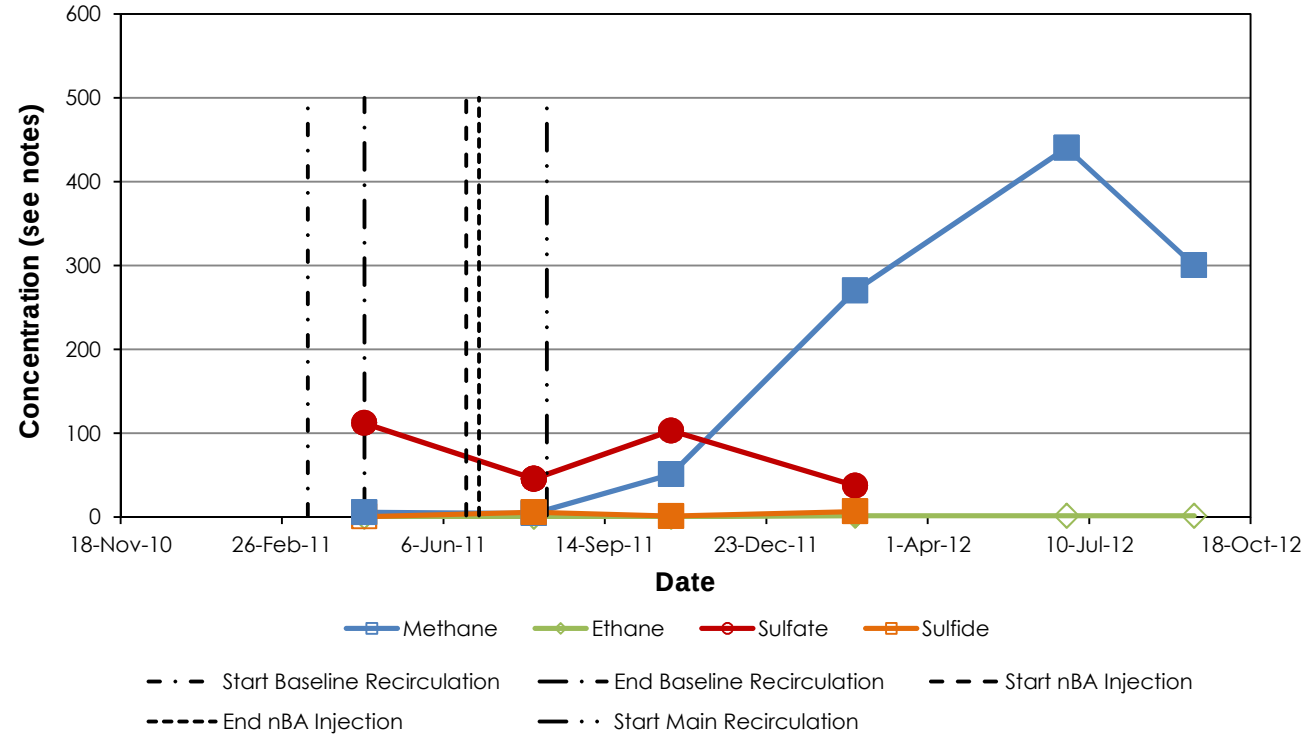
Figure **E-2-6a**

P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0001F.xlsx]Plot 2

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0001F - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-6b**

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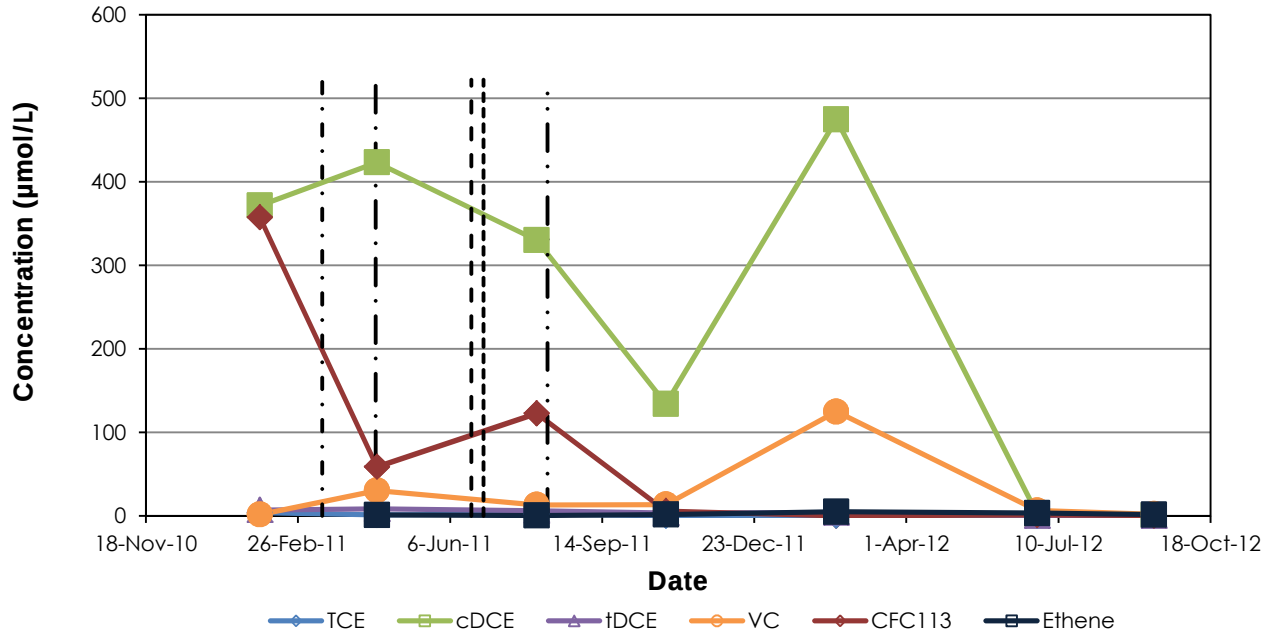
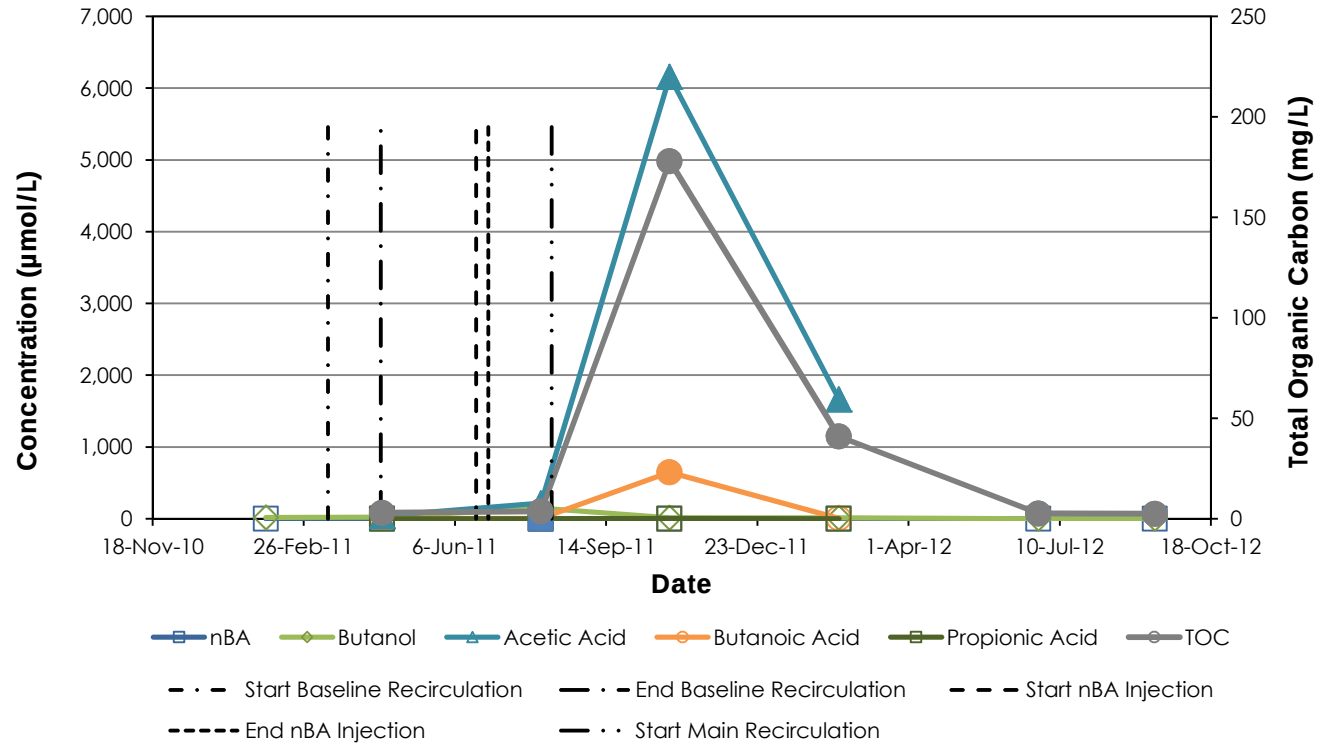
P:\PR\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0001F.xlsx]Plot 2

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0002A - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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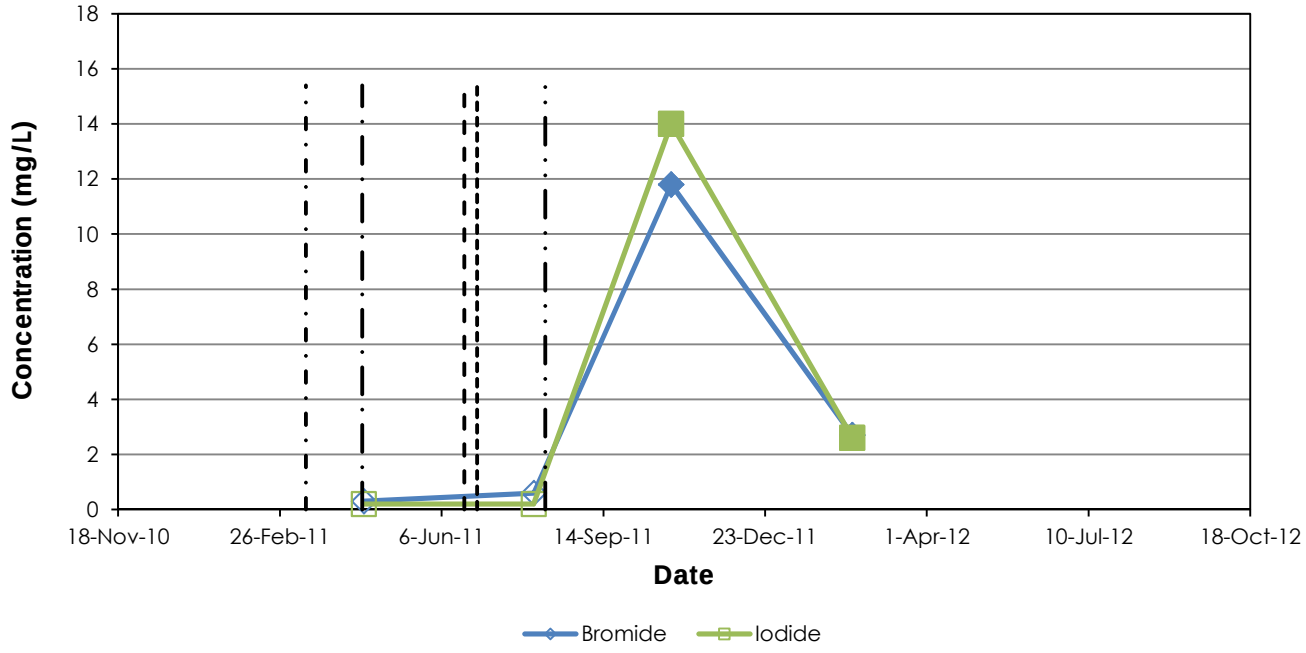
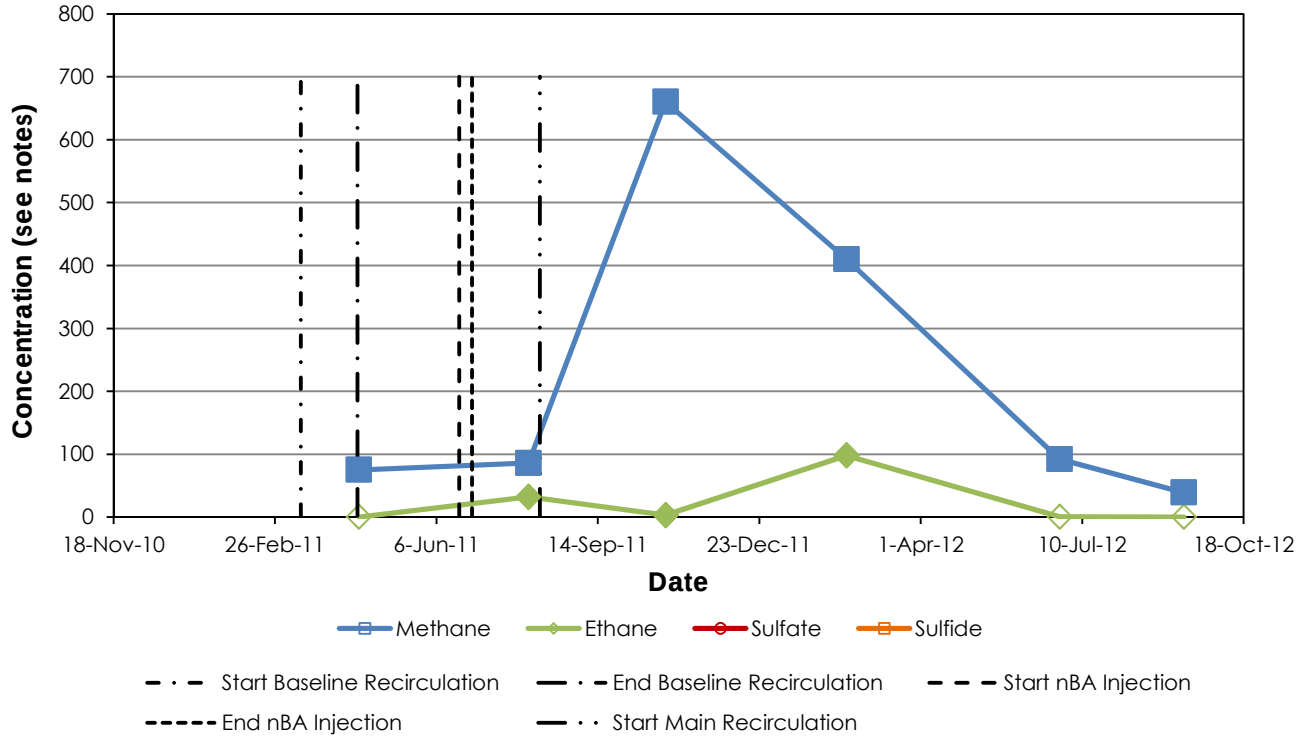
Figure **E-2-7a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0002A.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0002A - Tracer and Geochemical Parameter Time Trends

Launch Complex 34, Cape Canaveral, FL

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Figure **E-2-7b**

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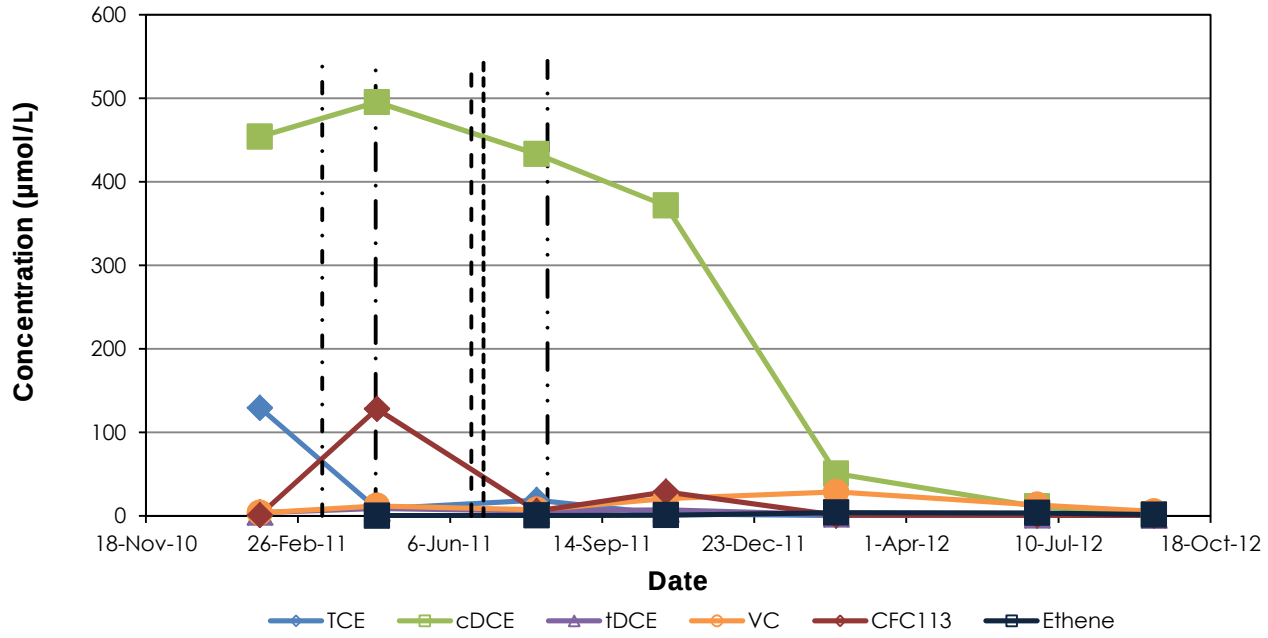
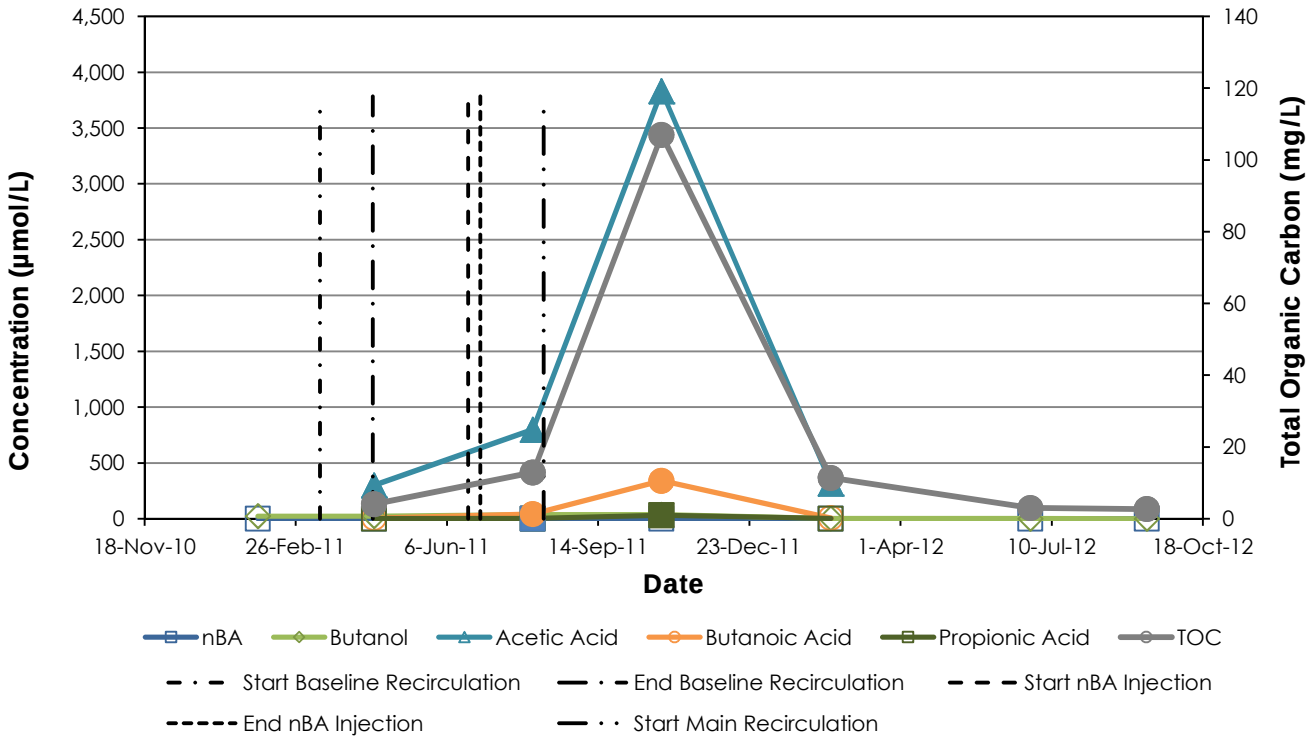
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0002A.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0002B - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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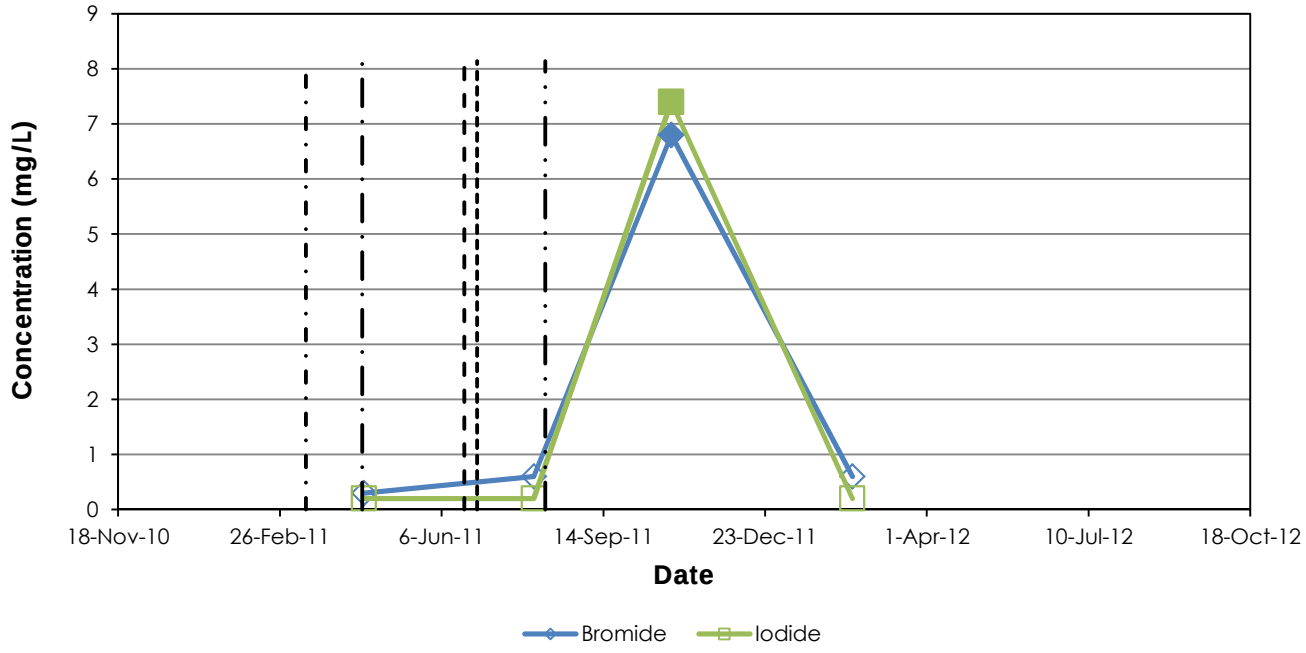
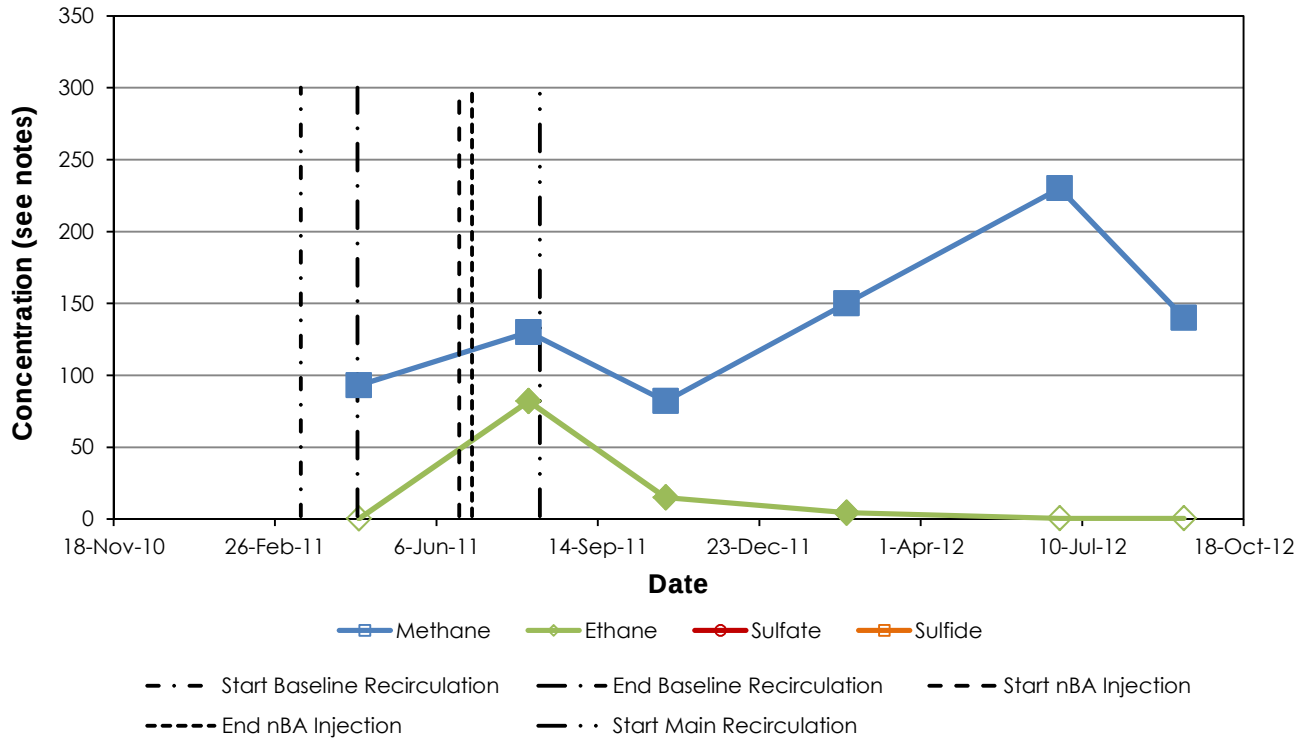
Figure **E-2-8a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0002B.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0002B - Tracer and Geochemical Parameter Time Trends

Launch Complex 34, Cape Canaveral, FL

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Figure **E-2-8b**

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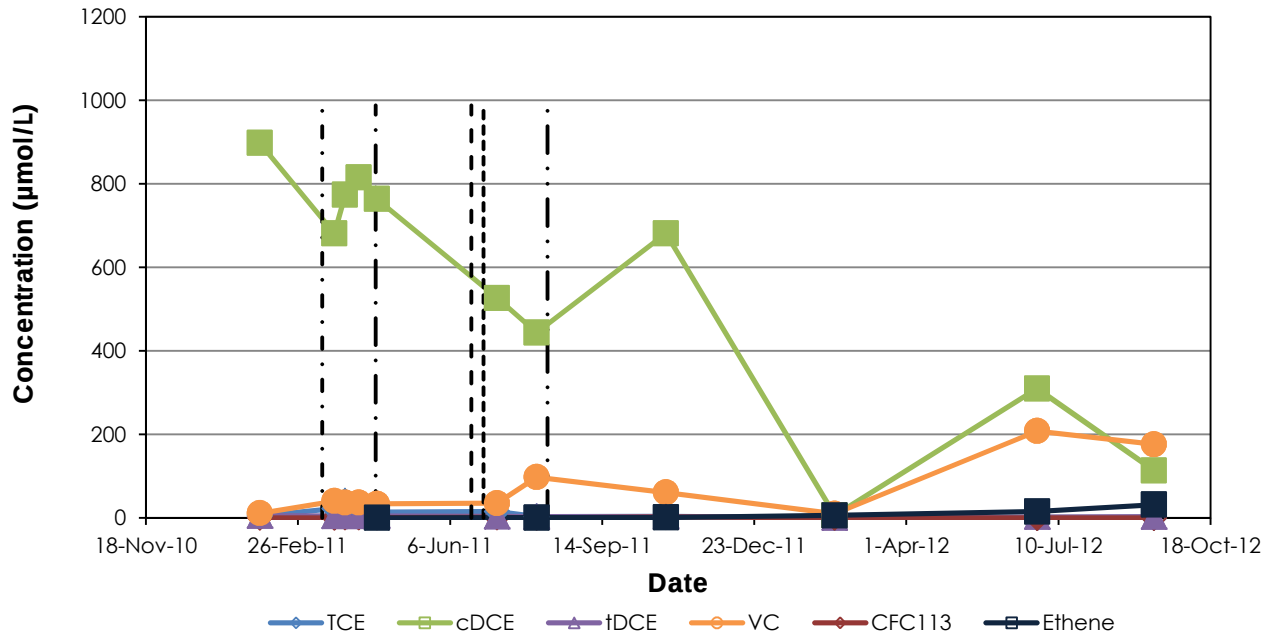
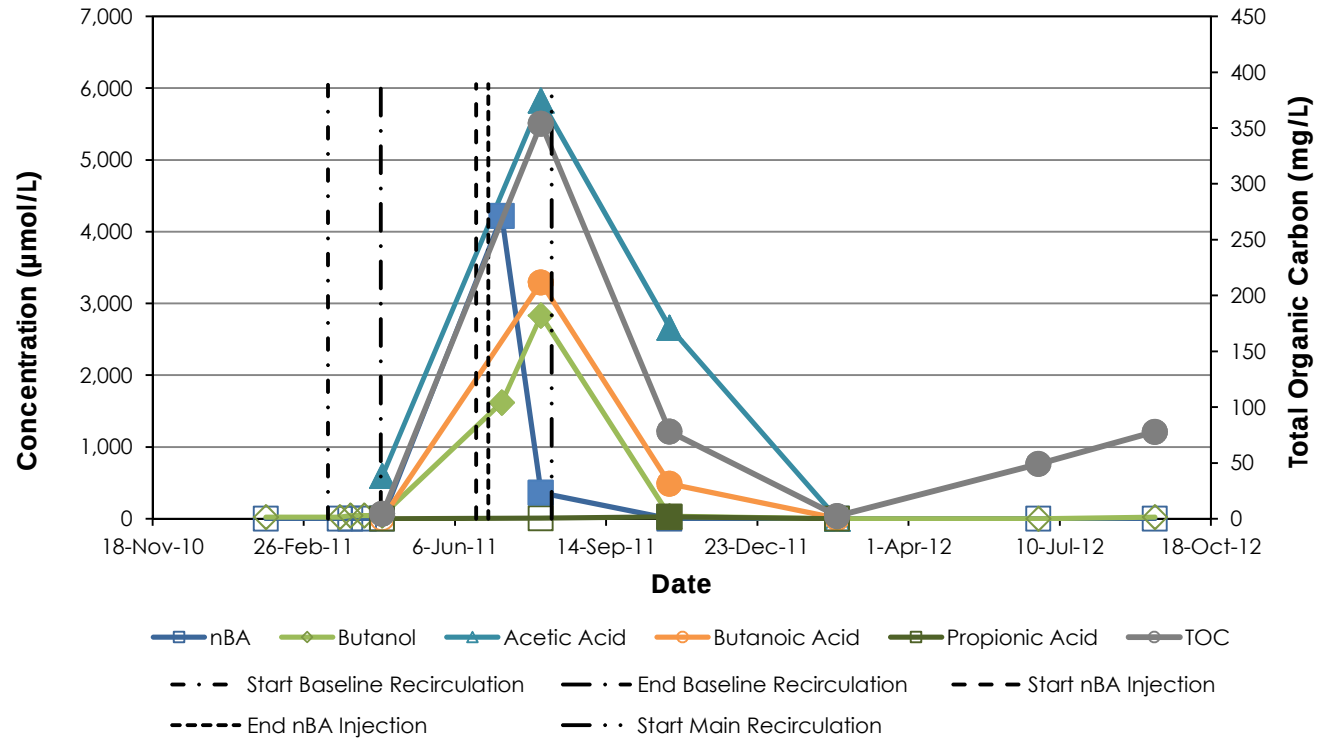
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0002B.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0002C - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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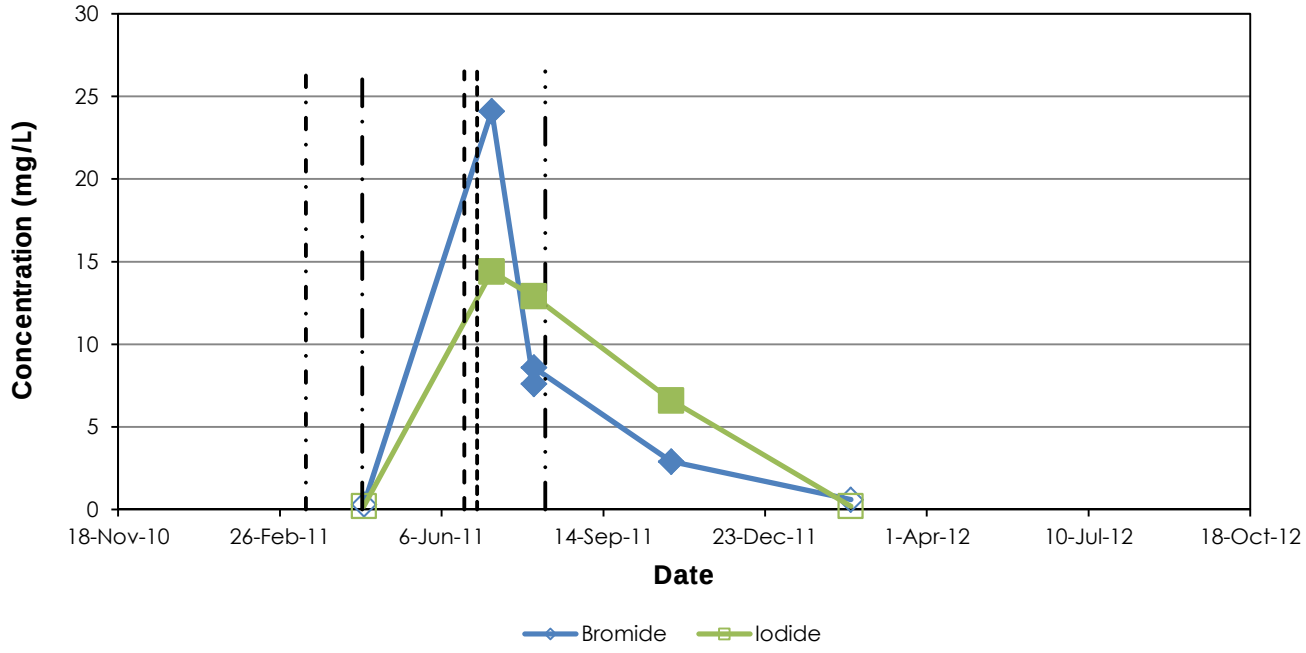
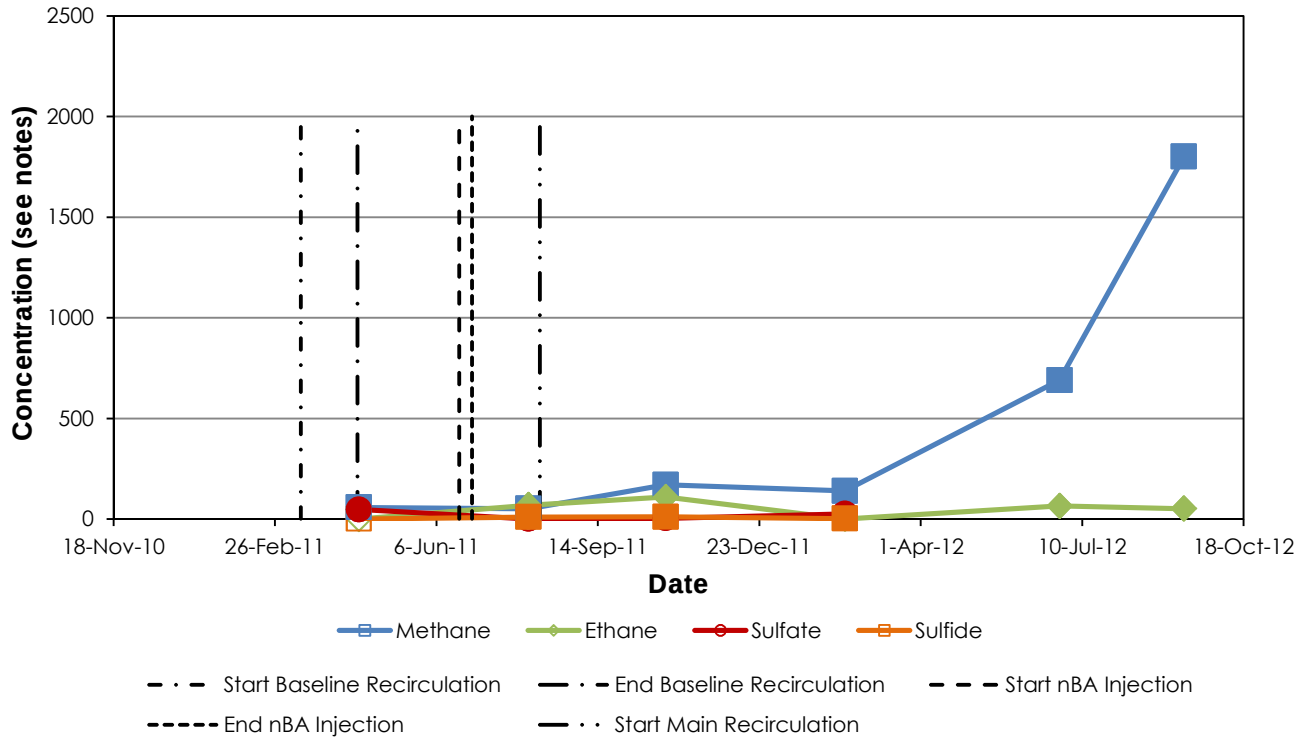
Figure **E-2-9a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0002C.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0002C - Tracer and Geochemical Parameter Time Trends

Launch Complex 34, Cape Canaveral, FL

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Figure **E-2-9b**

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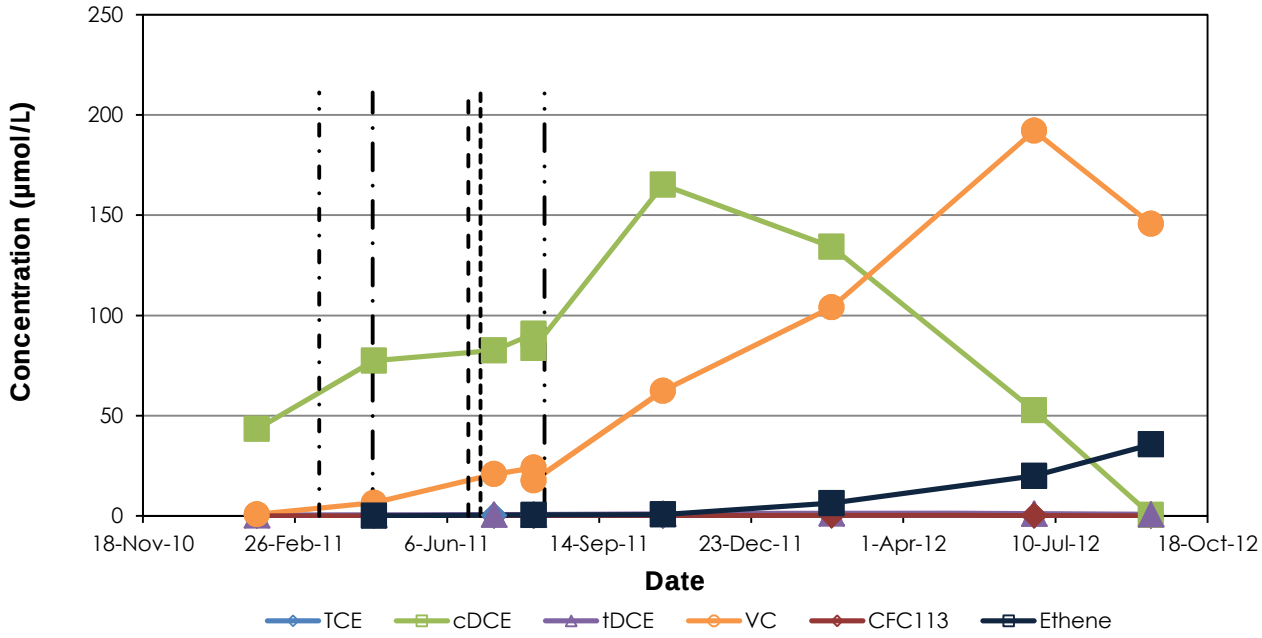
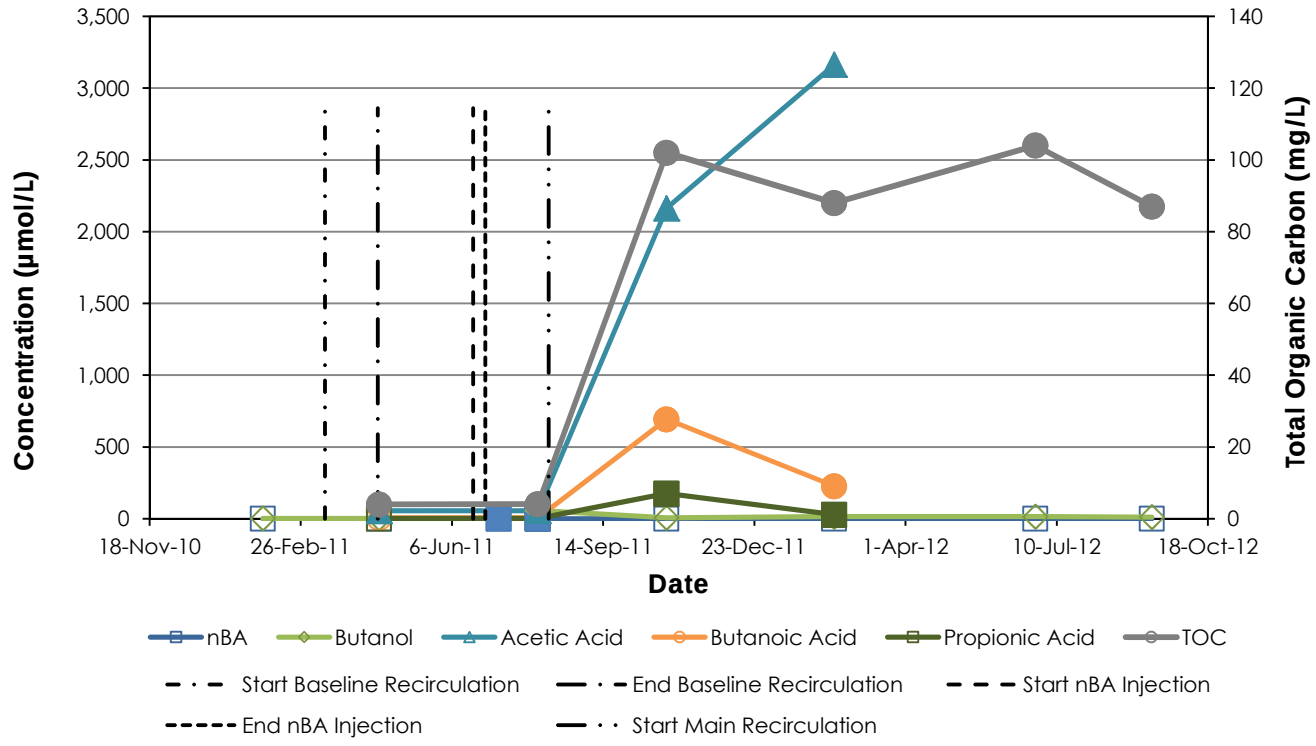
\\Guelph-01\Data\PRJ\Projects\VR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0002C.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
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cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0002D - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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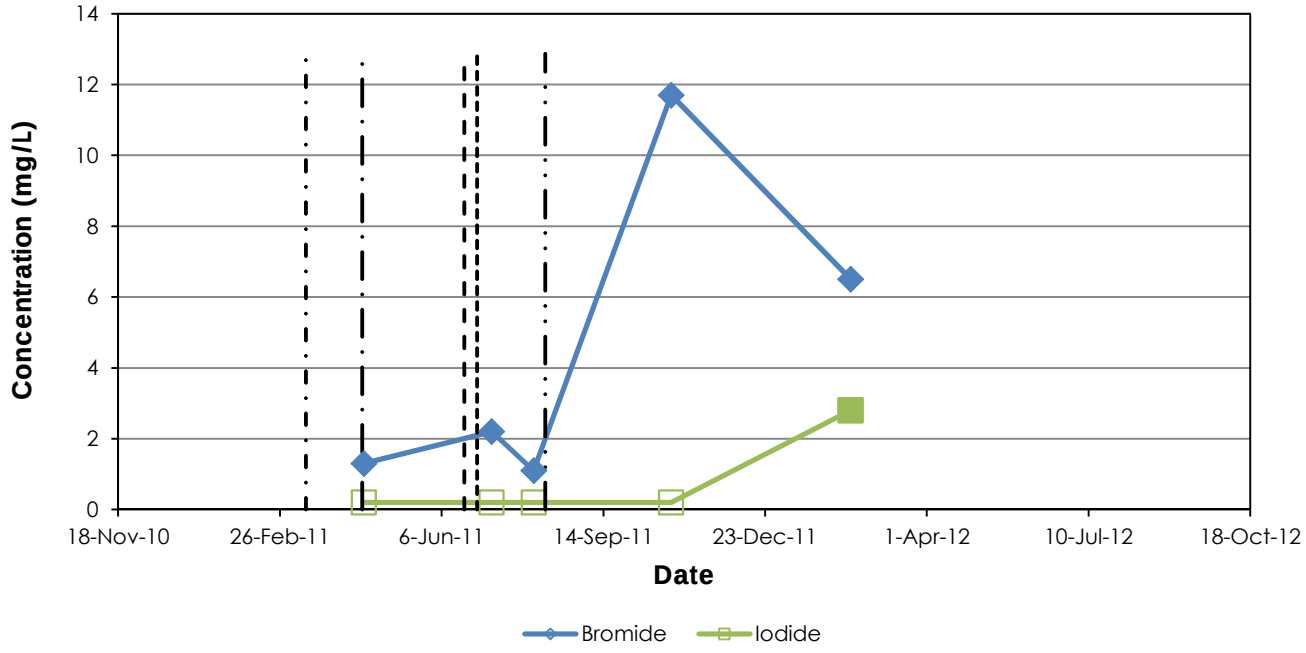
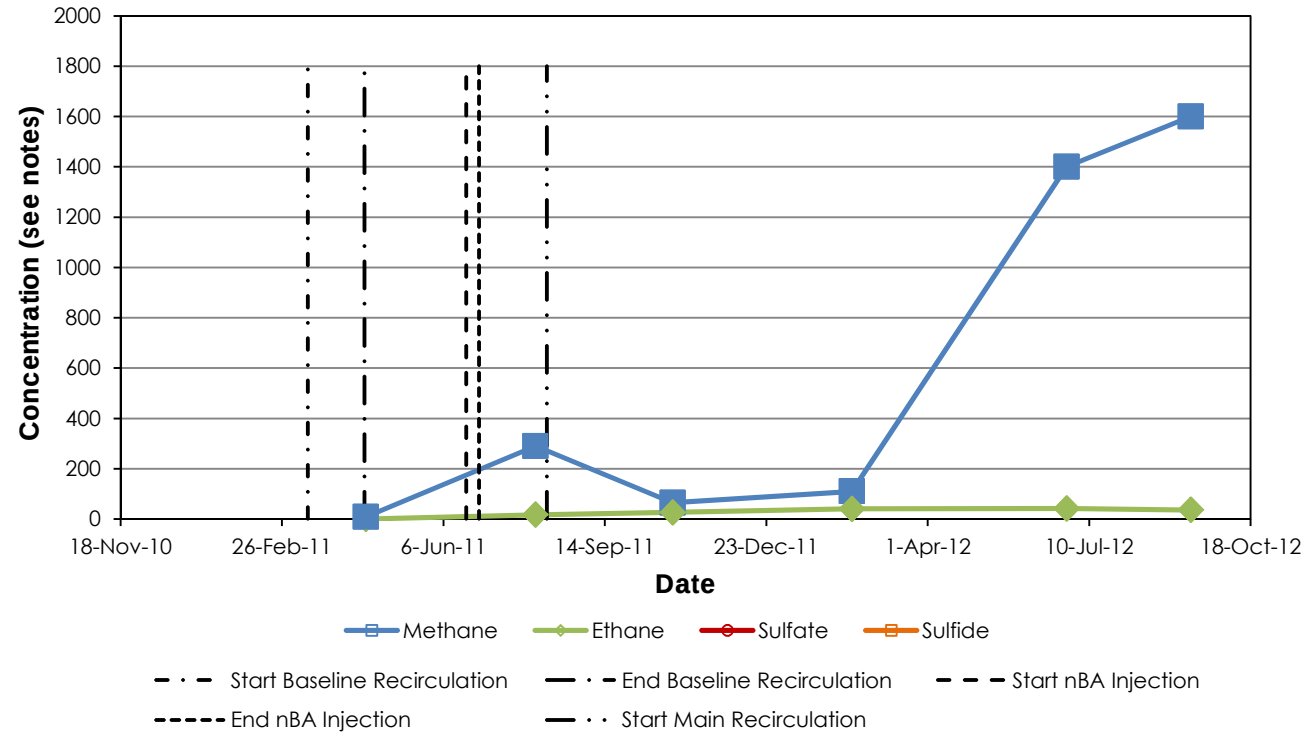
Figure **E-2-10a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0002D.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0002D - Tracer and Geochemical Parameter Time Trends

Launch Complex 34, Cape Canaveral, FL

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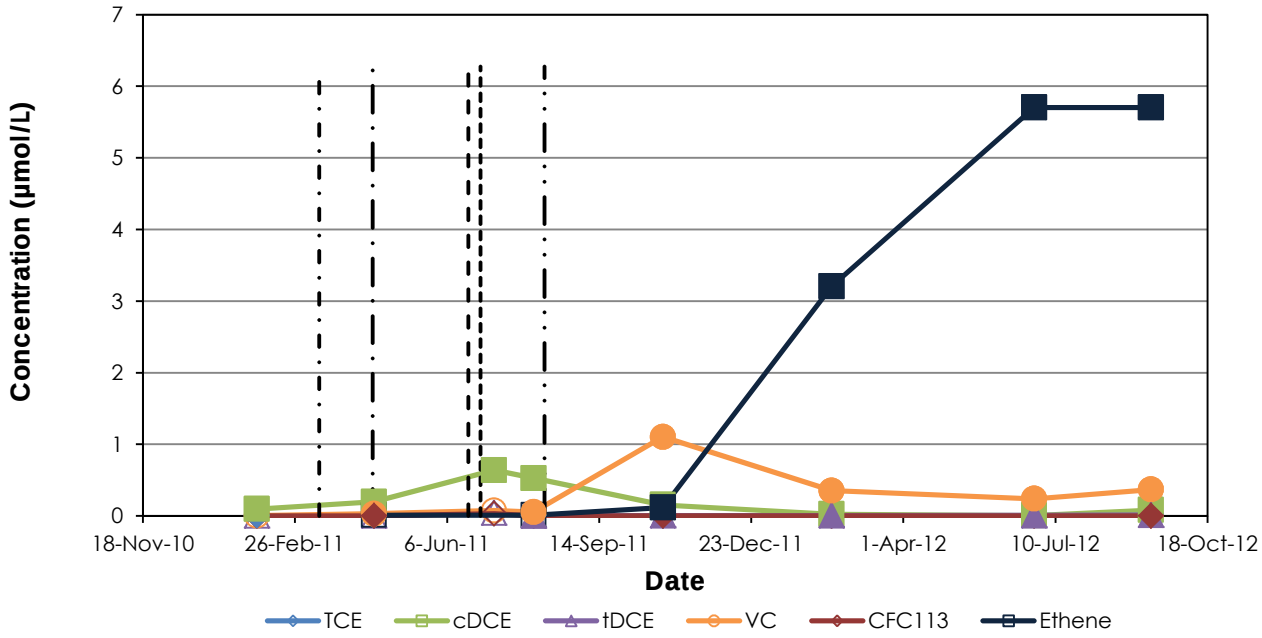
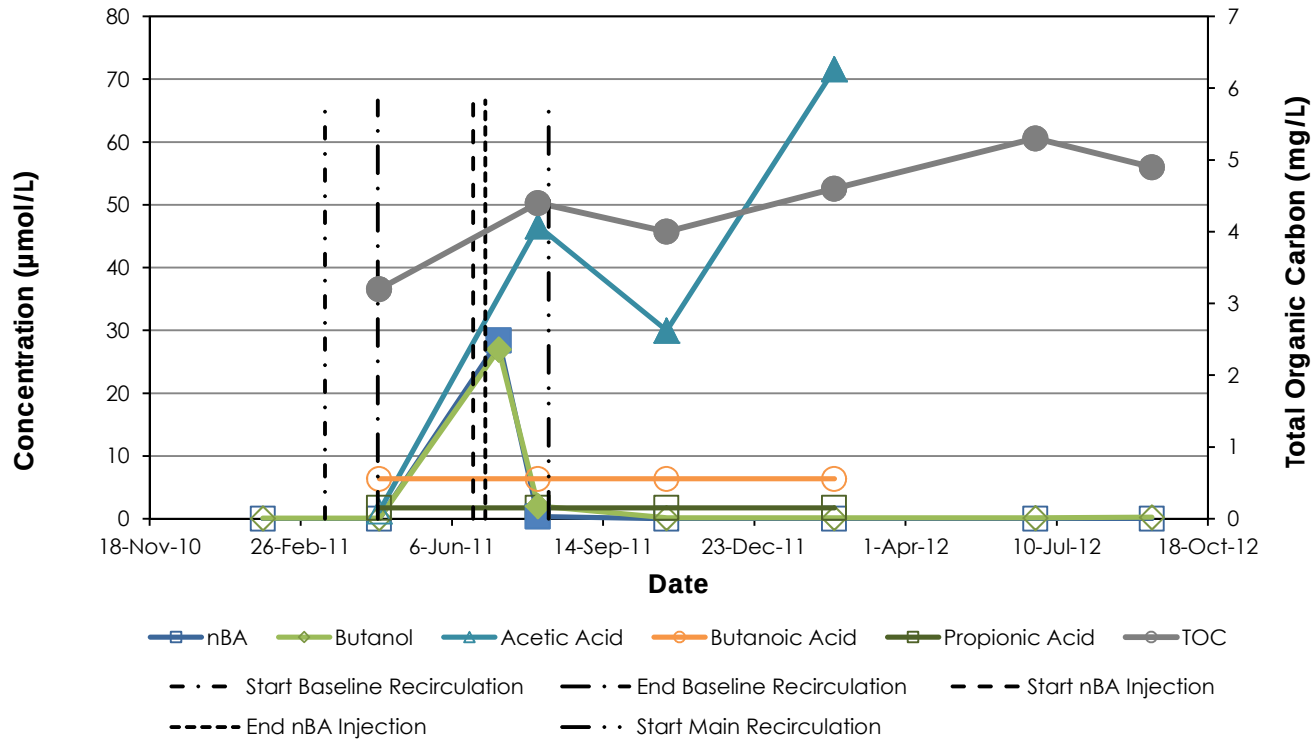
Figure **E-2-10b**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0002D.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0002E - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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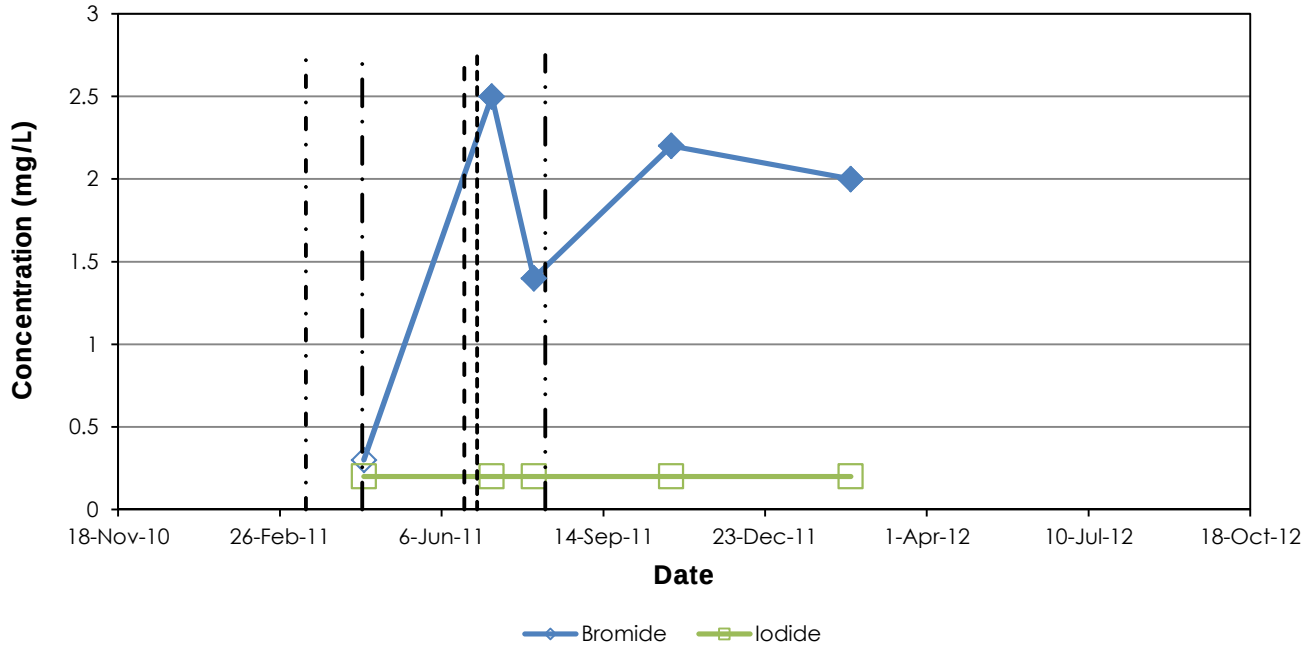
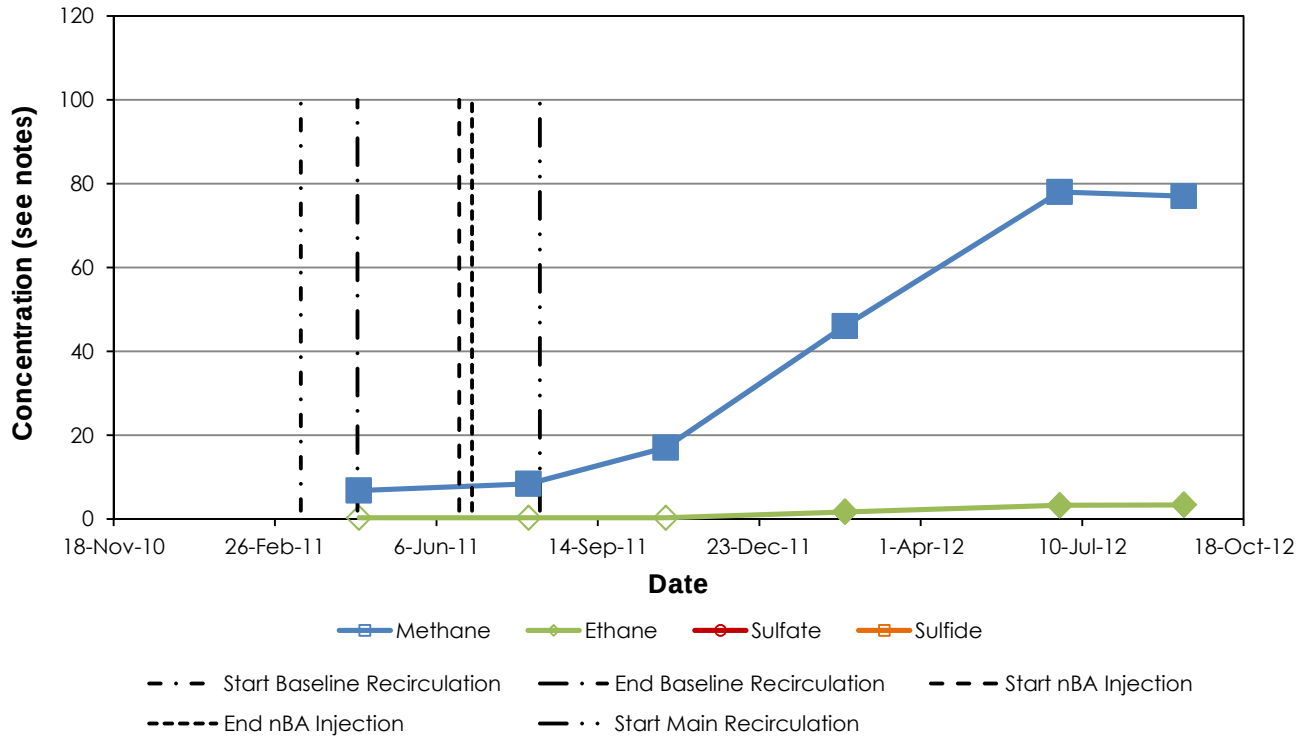
Figure **E-2-11a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0002E.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0002E - Tracer and Geochemical Parameter Time Trends

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Figure

E-2-11b

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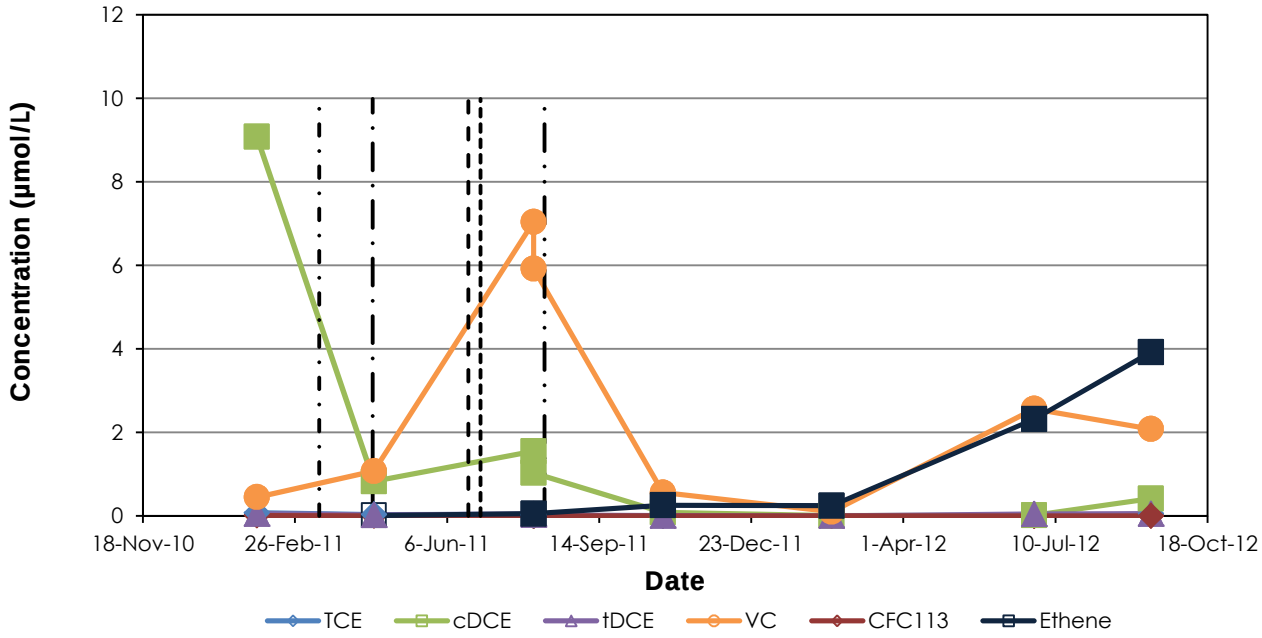
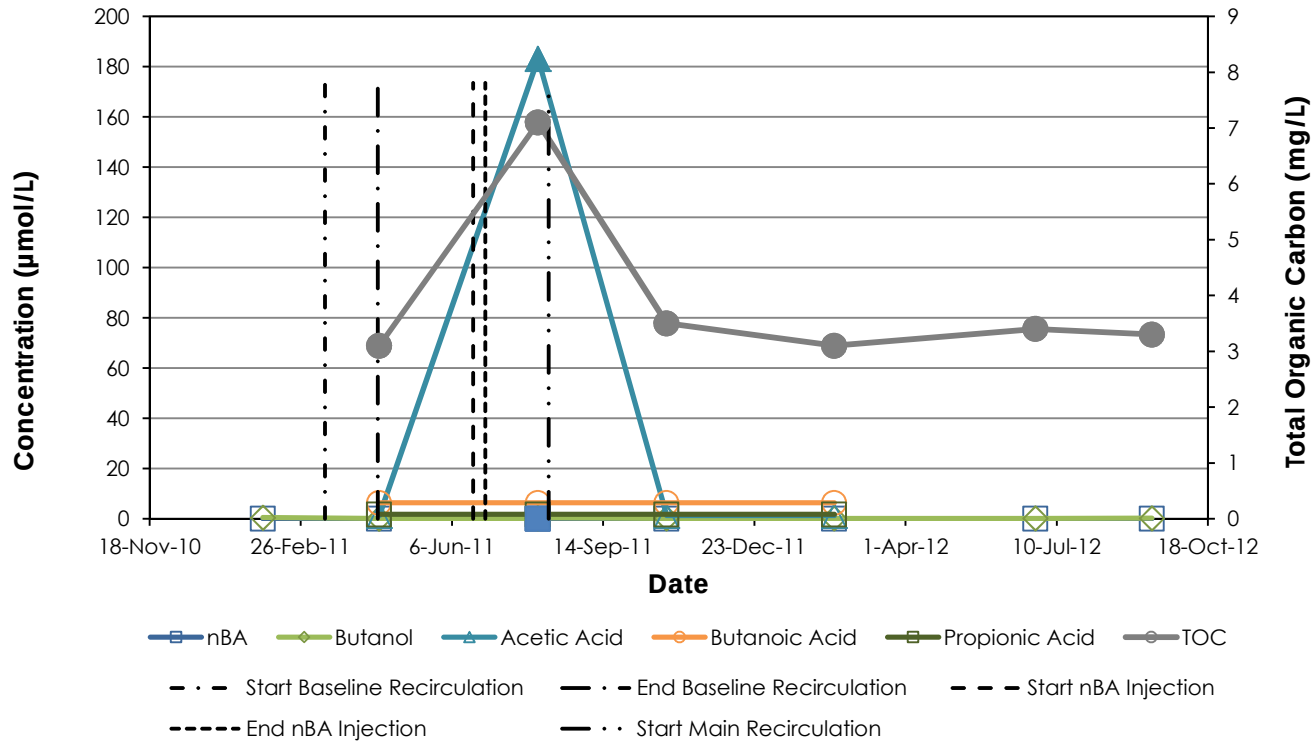
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0002E.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0002F - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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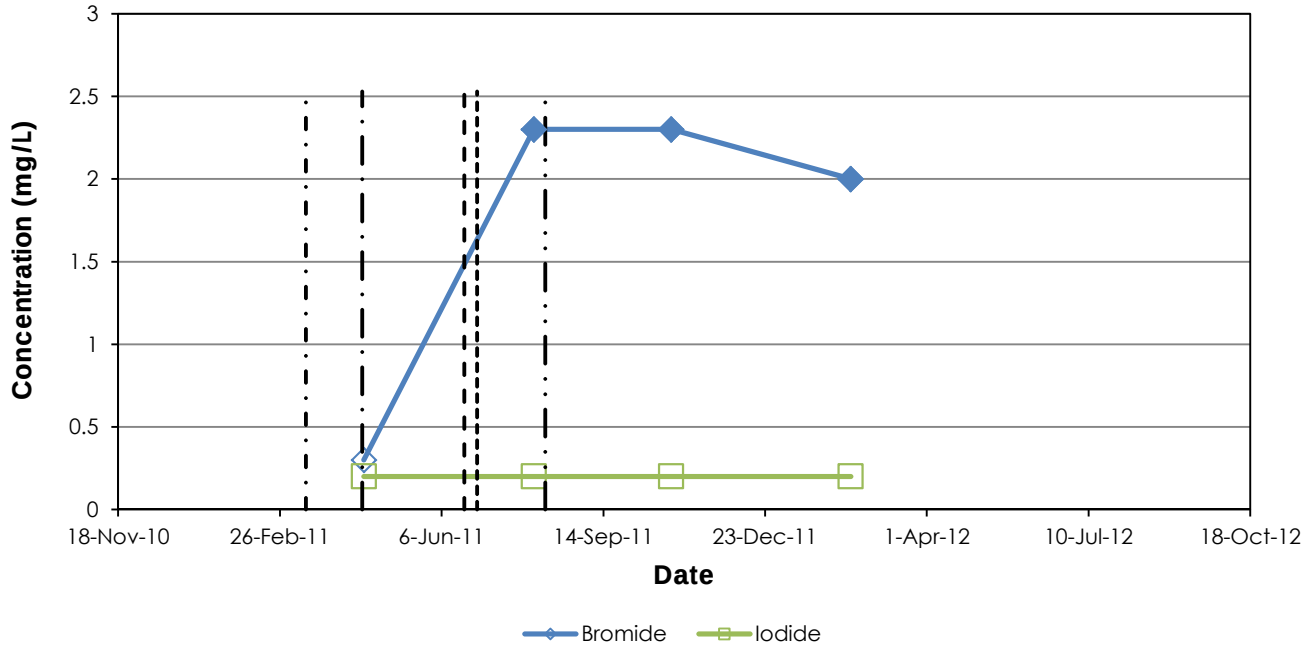
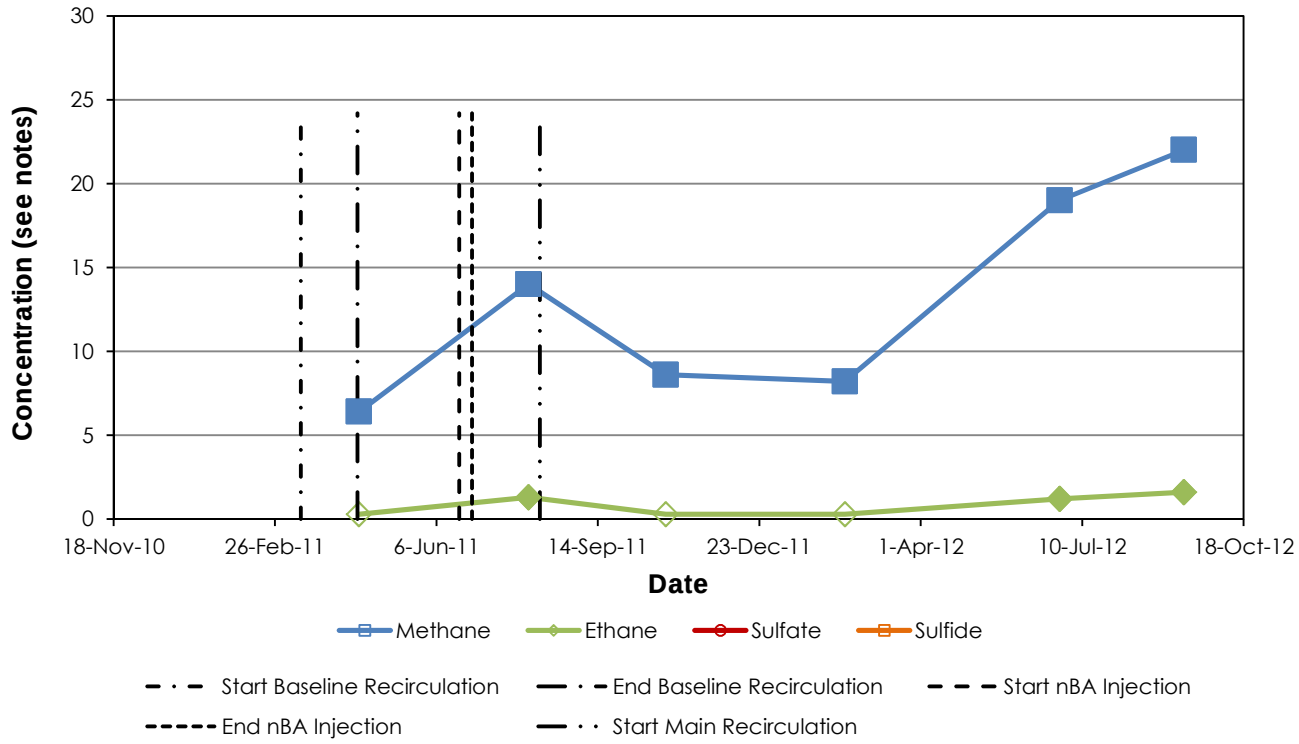
Figure **E-2-12a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0002F.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0002F - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-12b**

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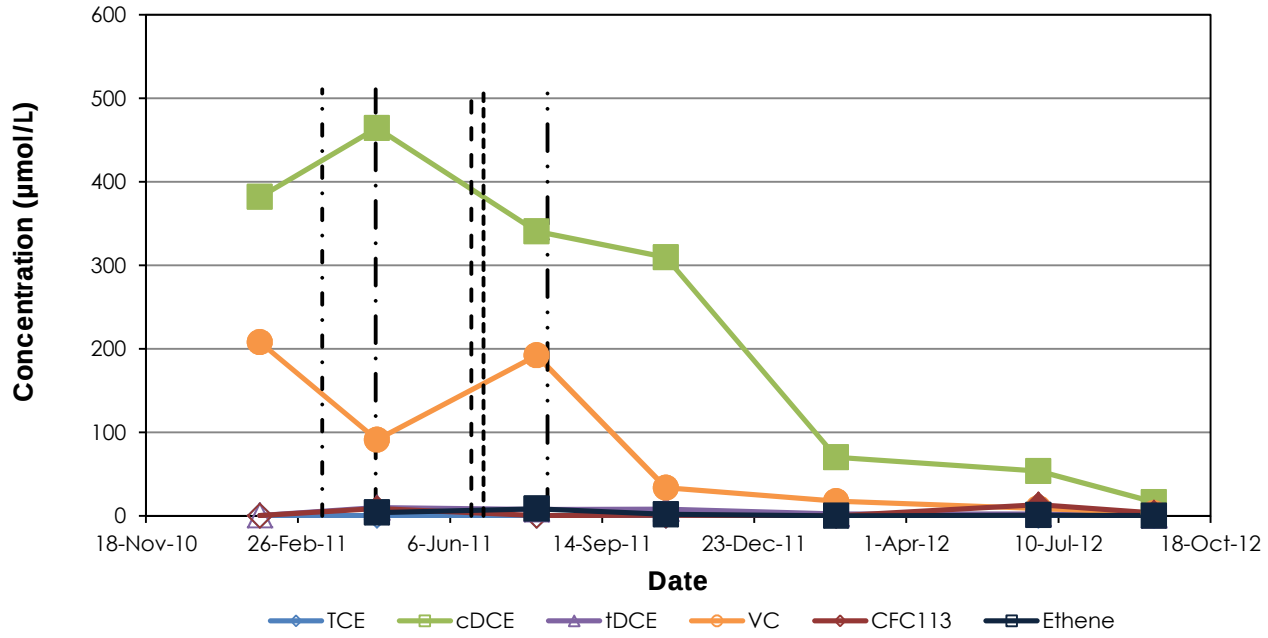
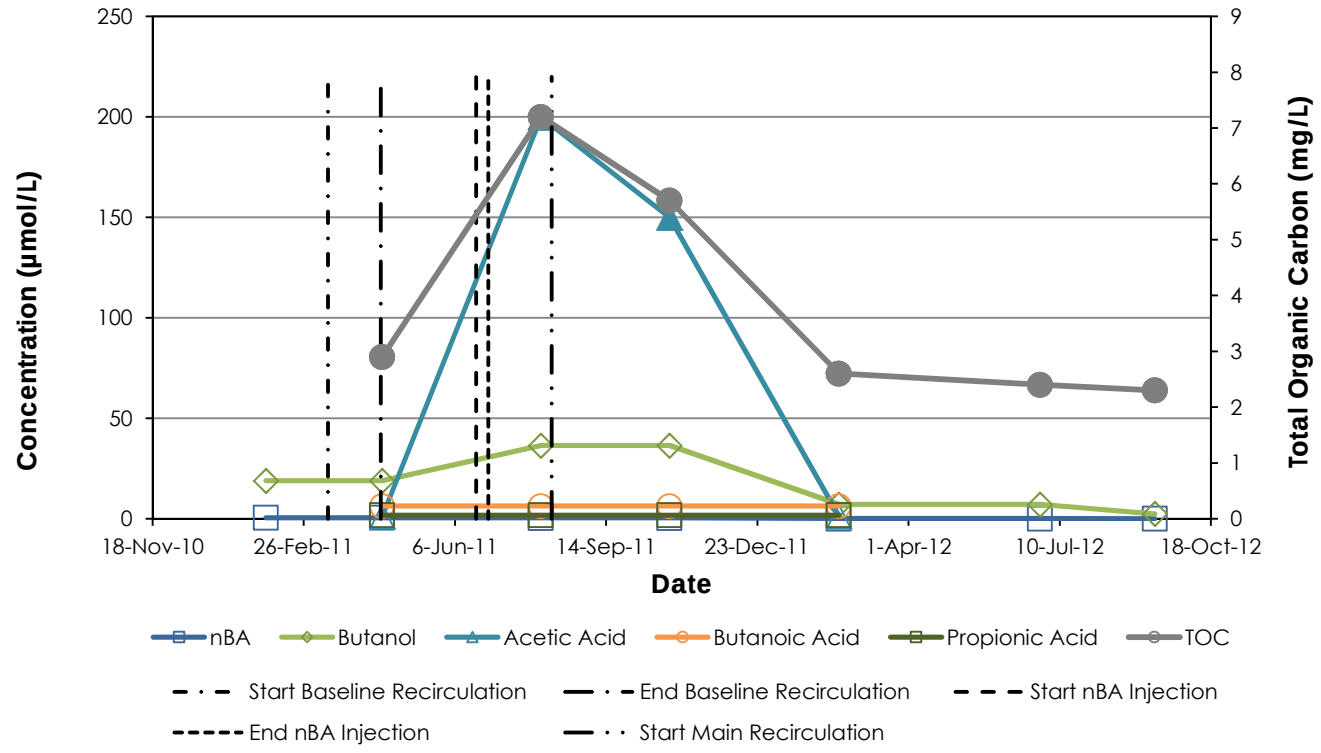
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0002F.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0003A - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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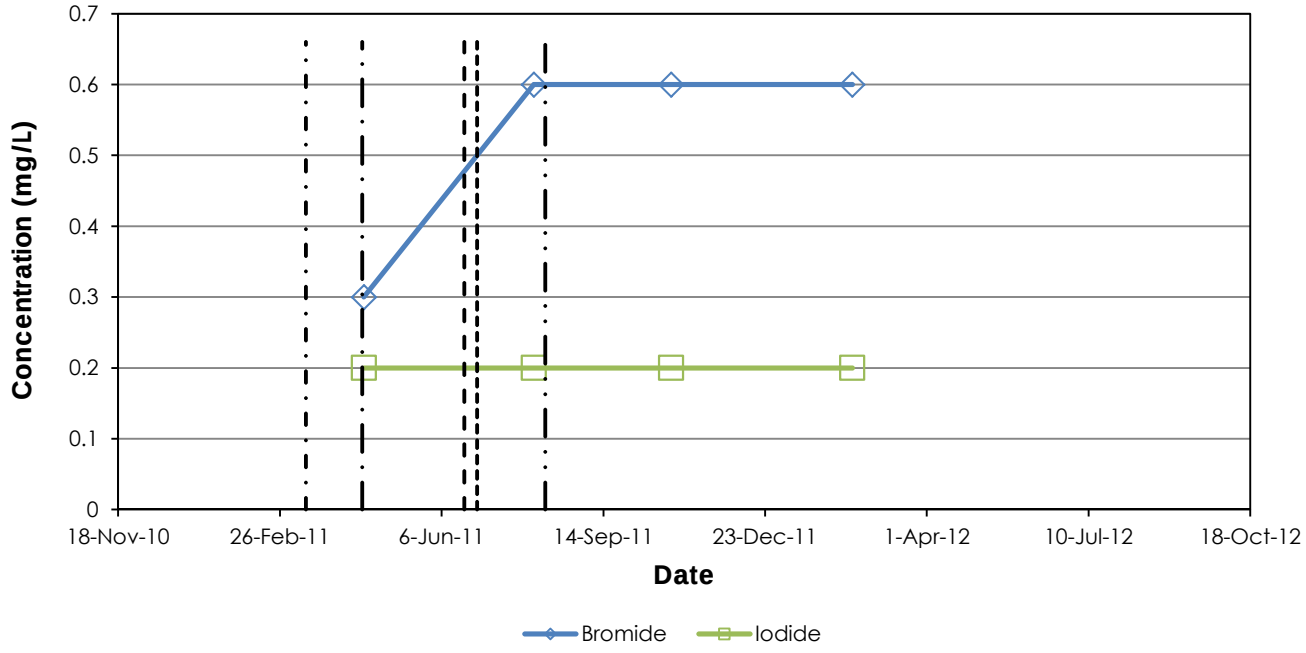
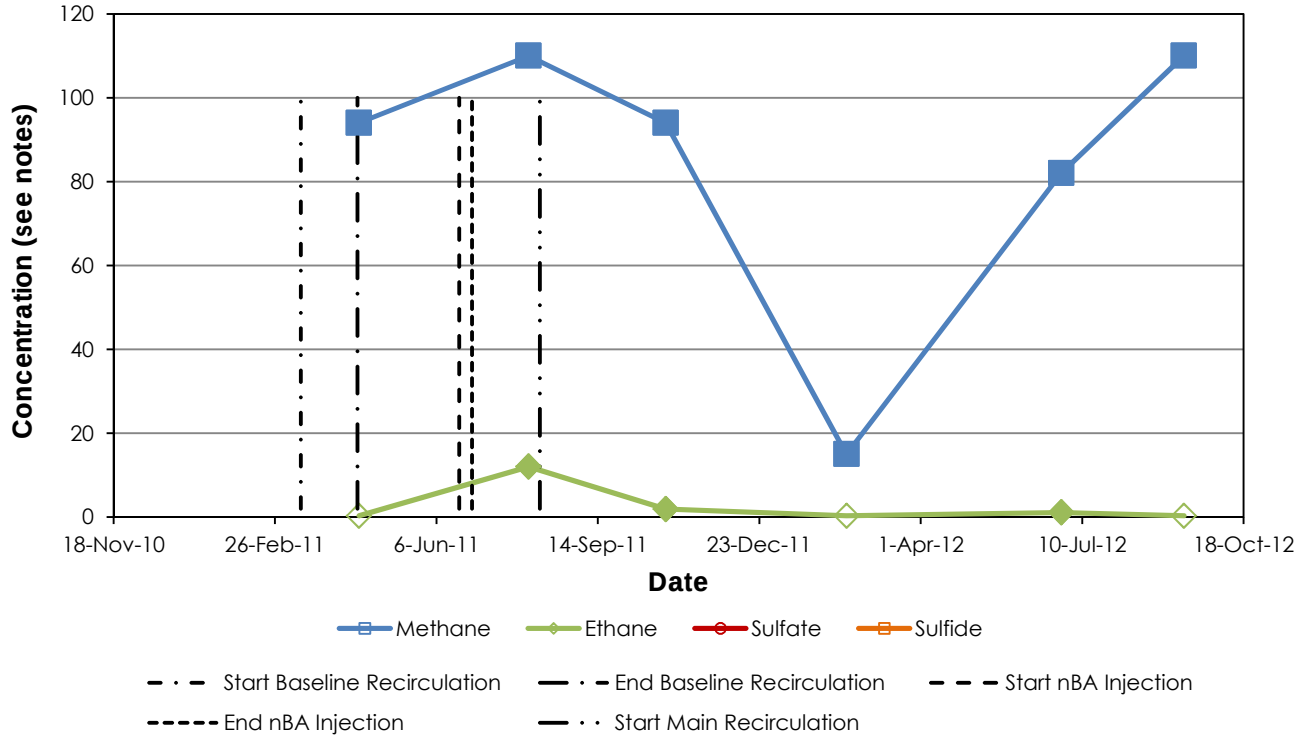
Figure **E-2-13a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0003A.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0003A - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-13b**

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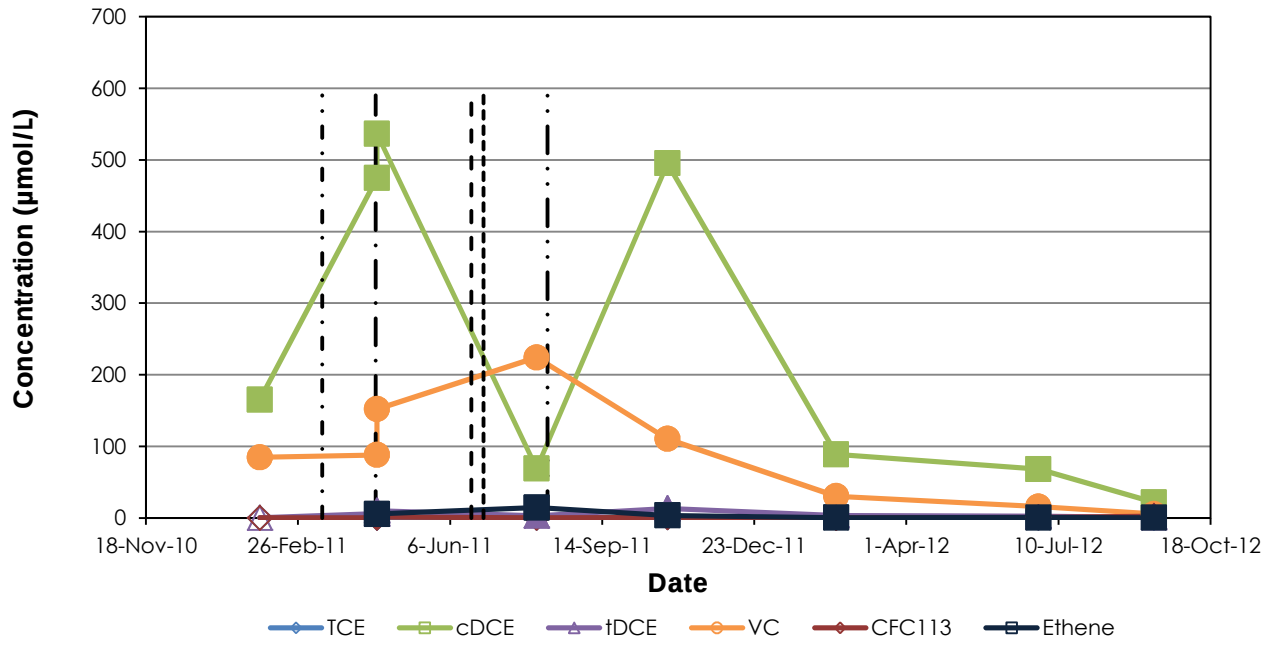
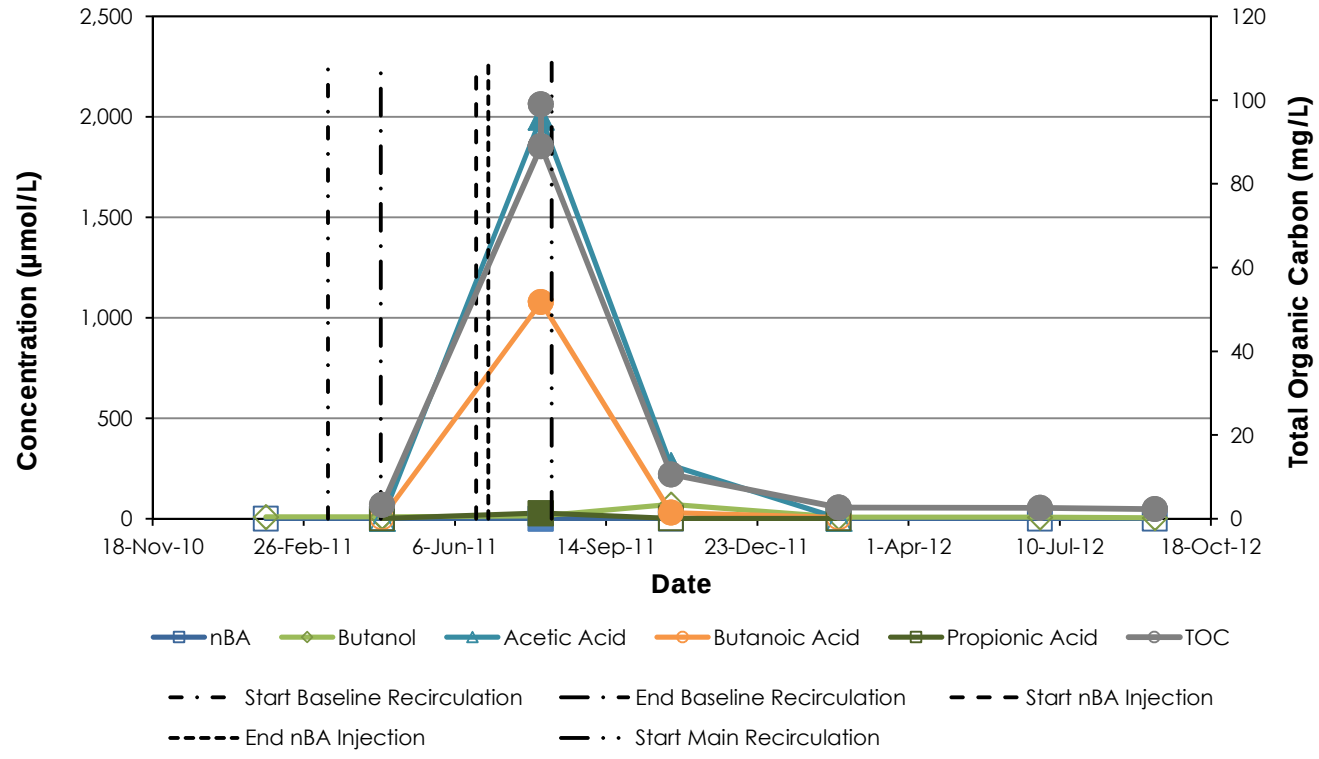
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0003A.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0003B - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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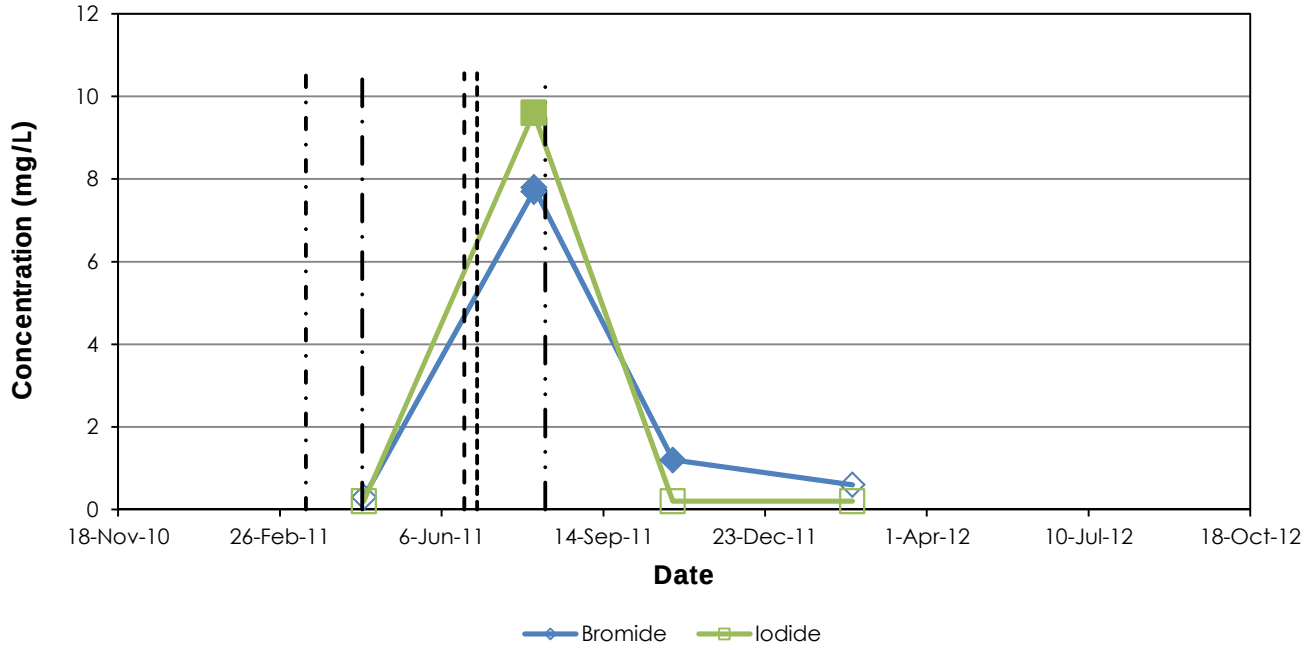
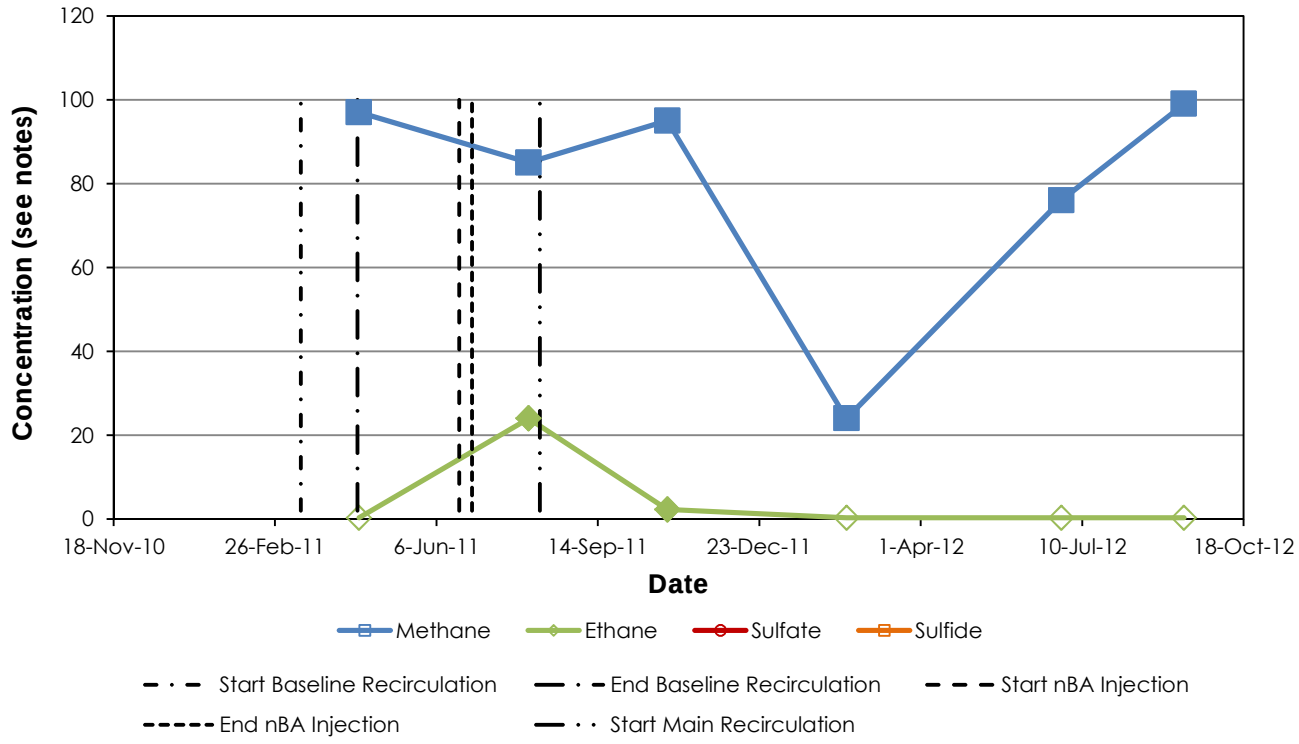
Figure **E-2-14a**

P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0003B.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0003B - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-14b**

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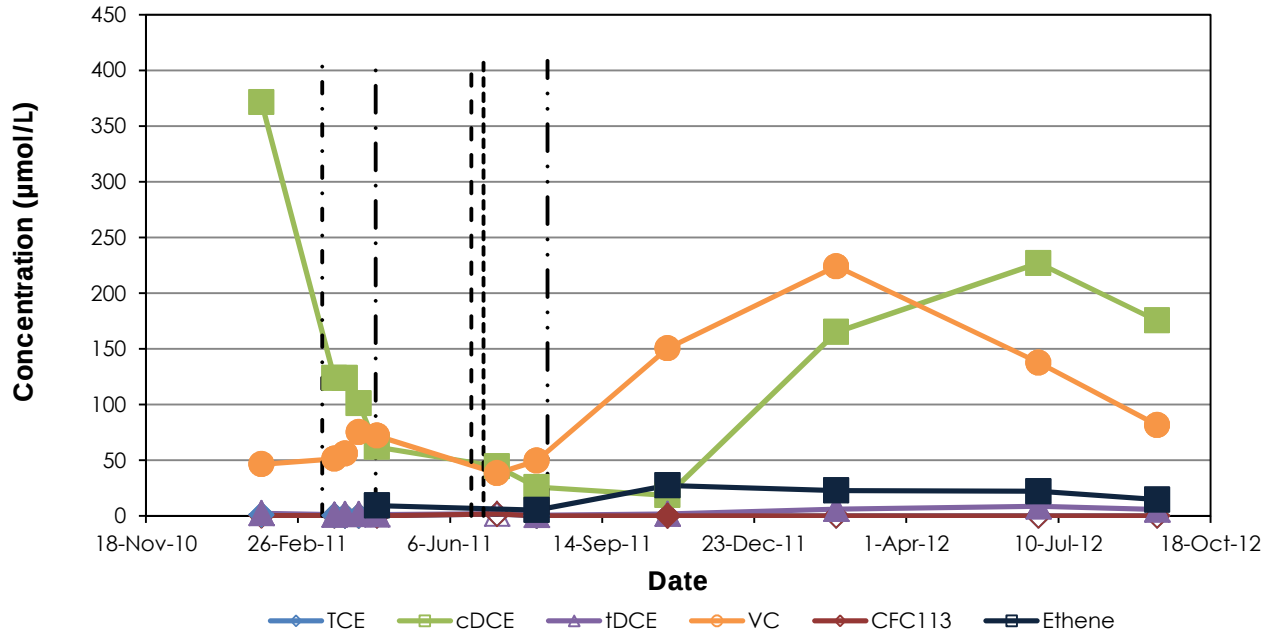
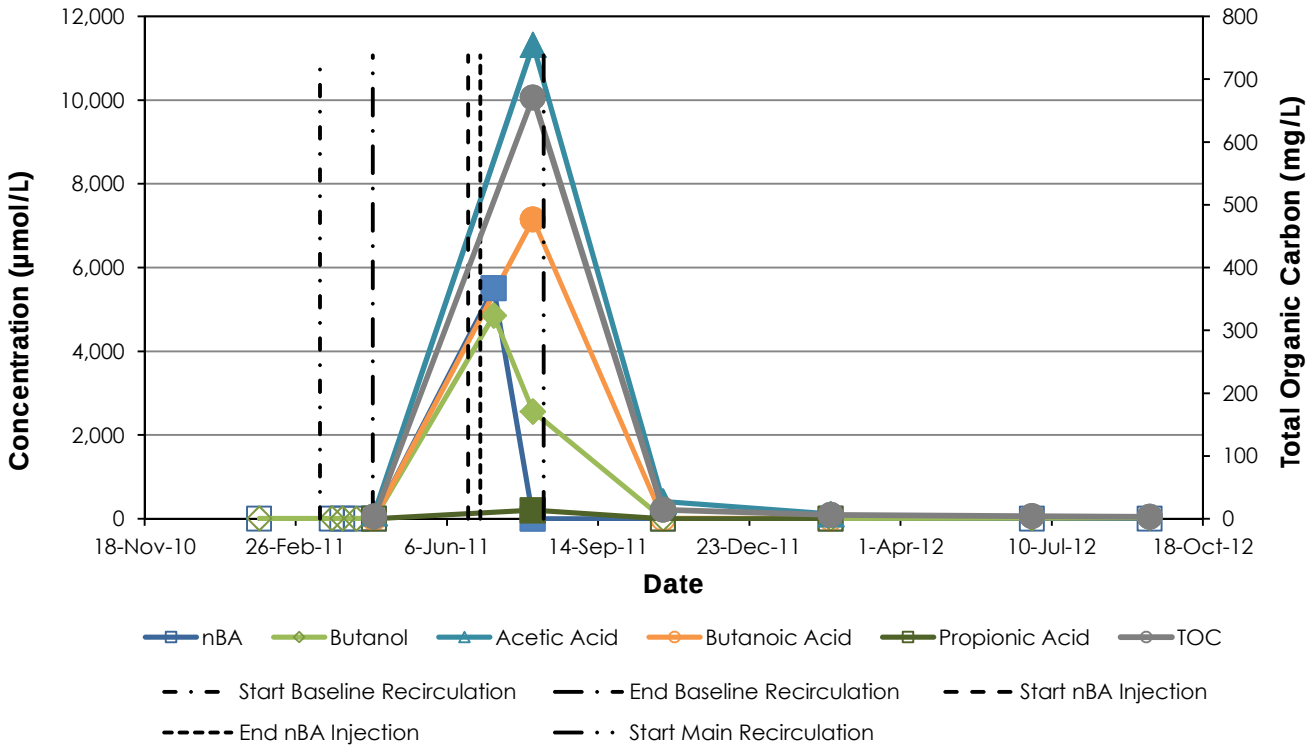
P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0003B.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0003C - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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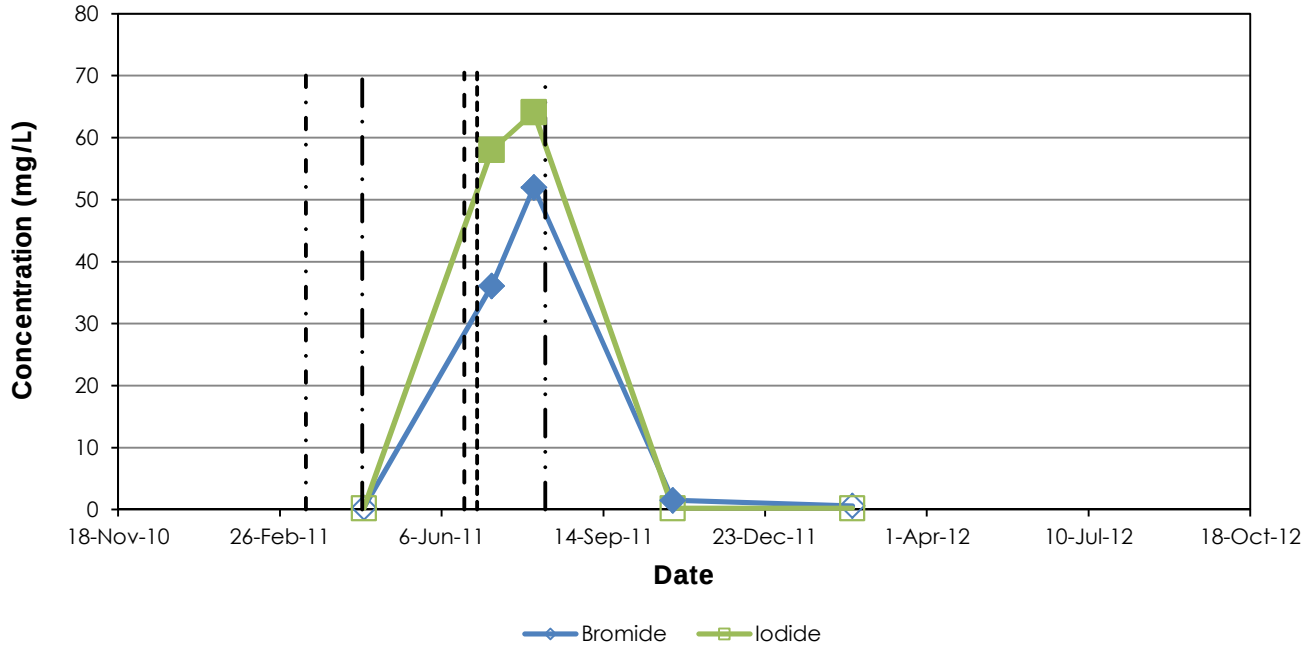
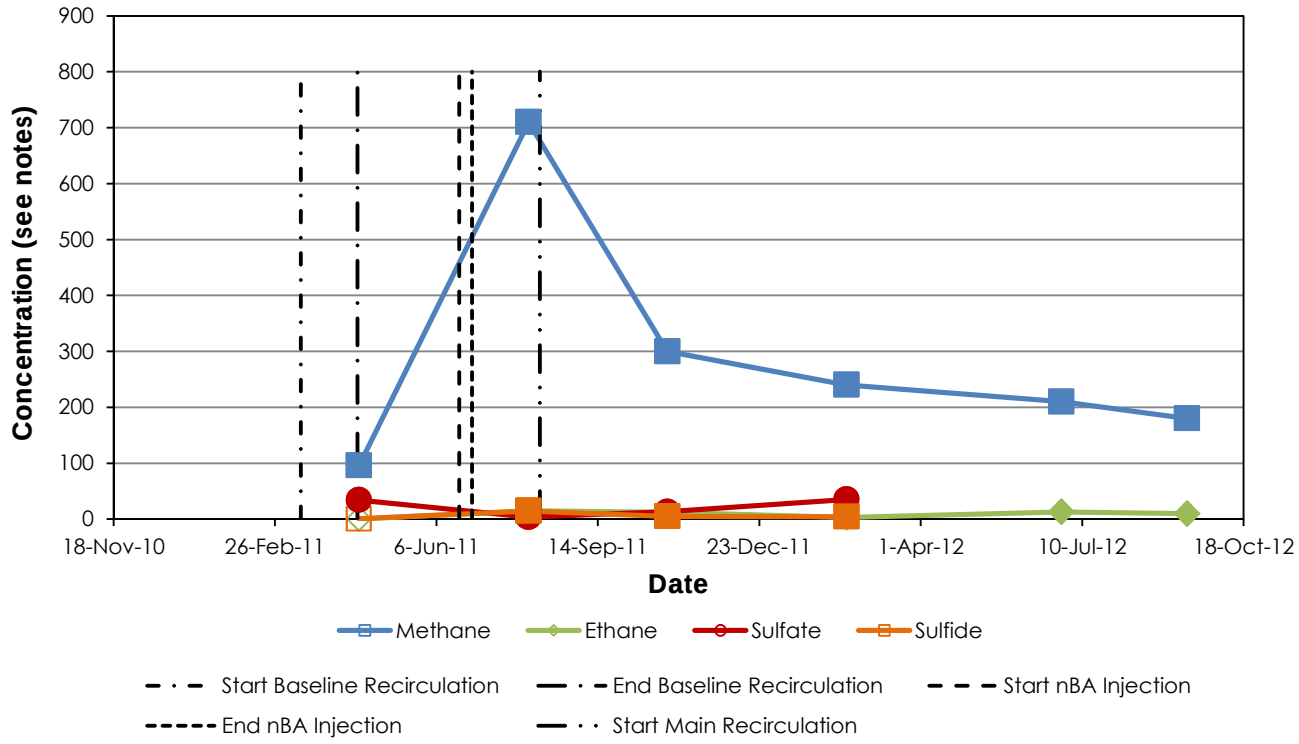
Figure **E-2-15a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0003C.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0003C - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-15b**

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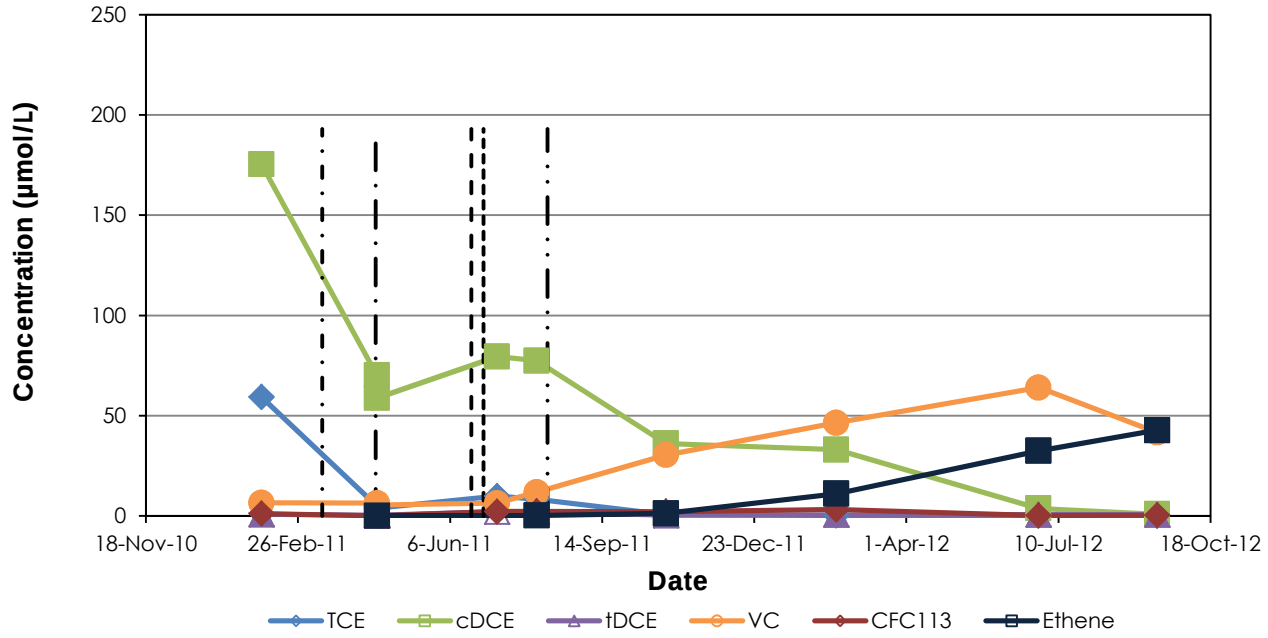
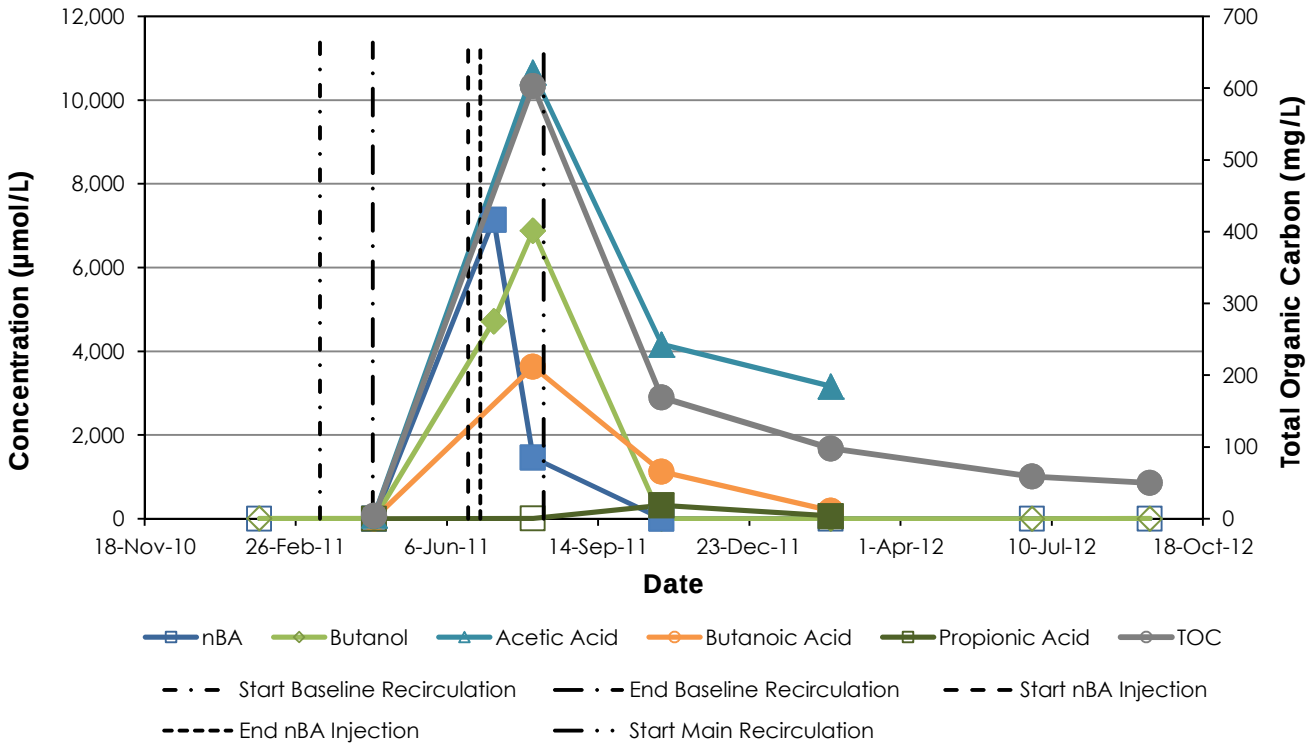
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0003C.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0003D - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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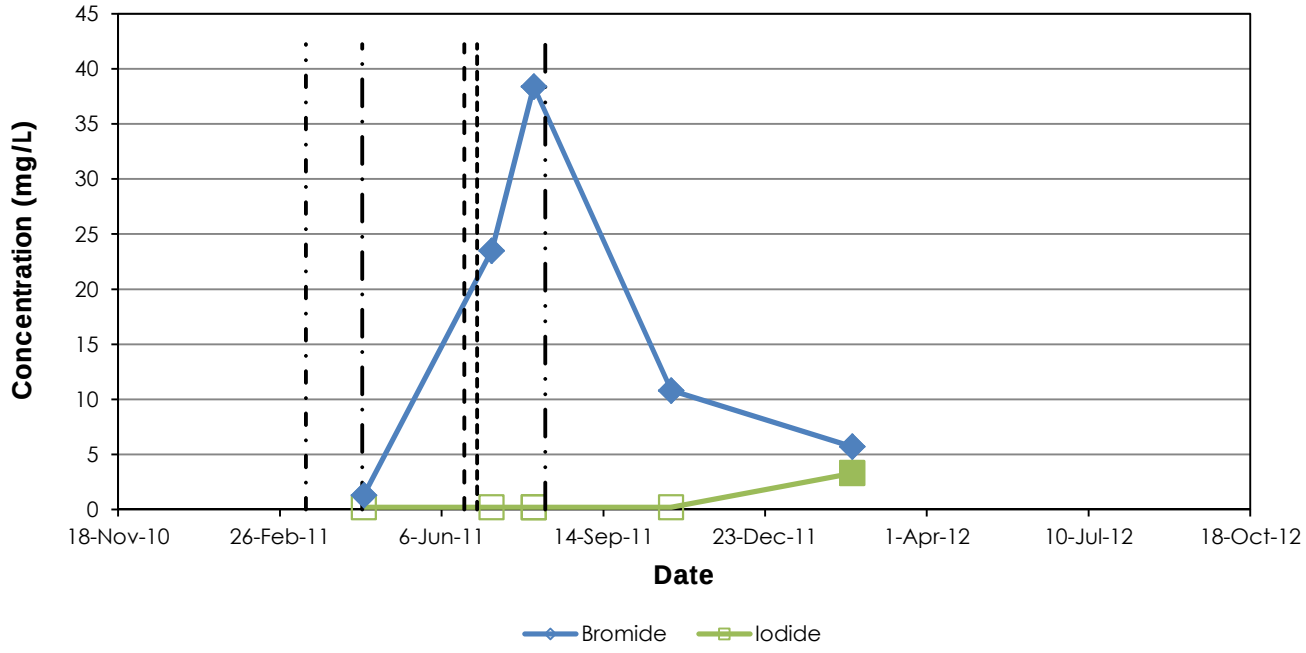
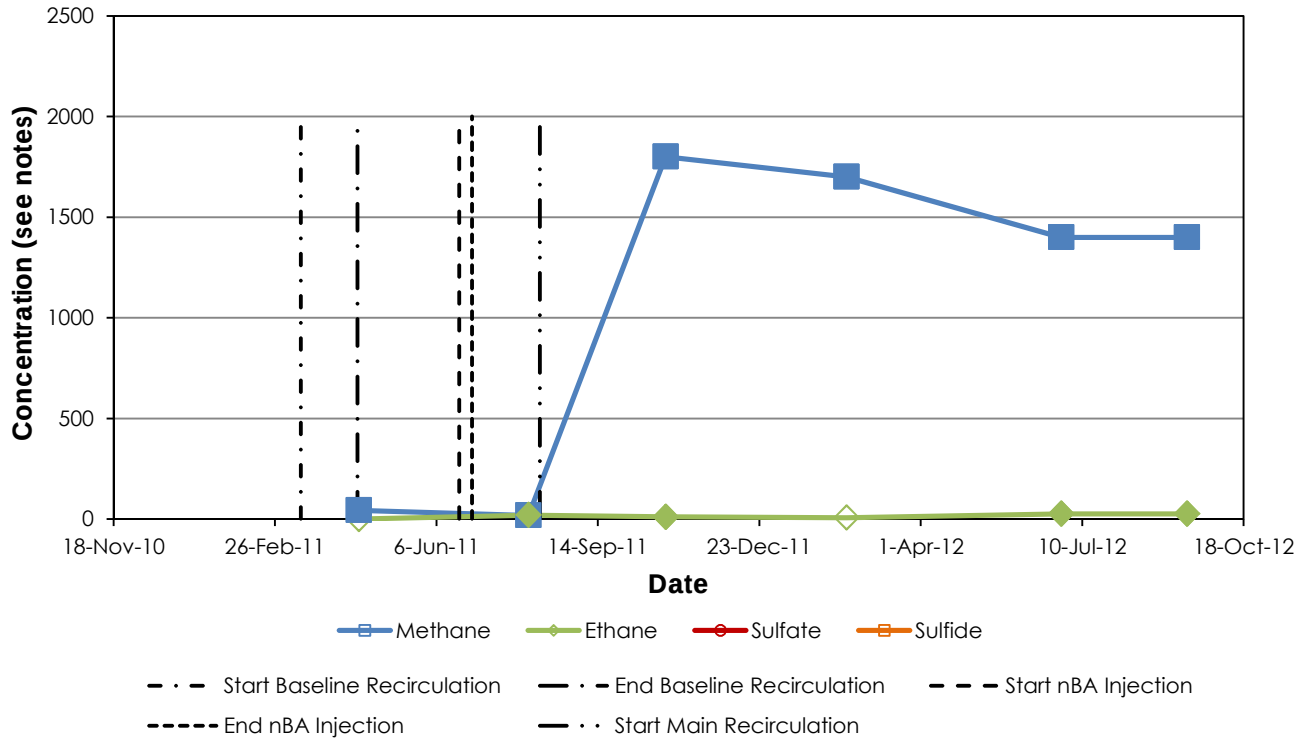
Figure **E-2-16a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0003D.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0003D - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-16b**

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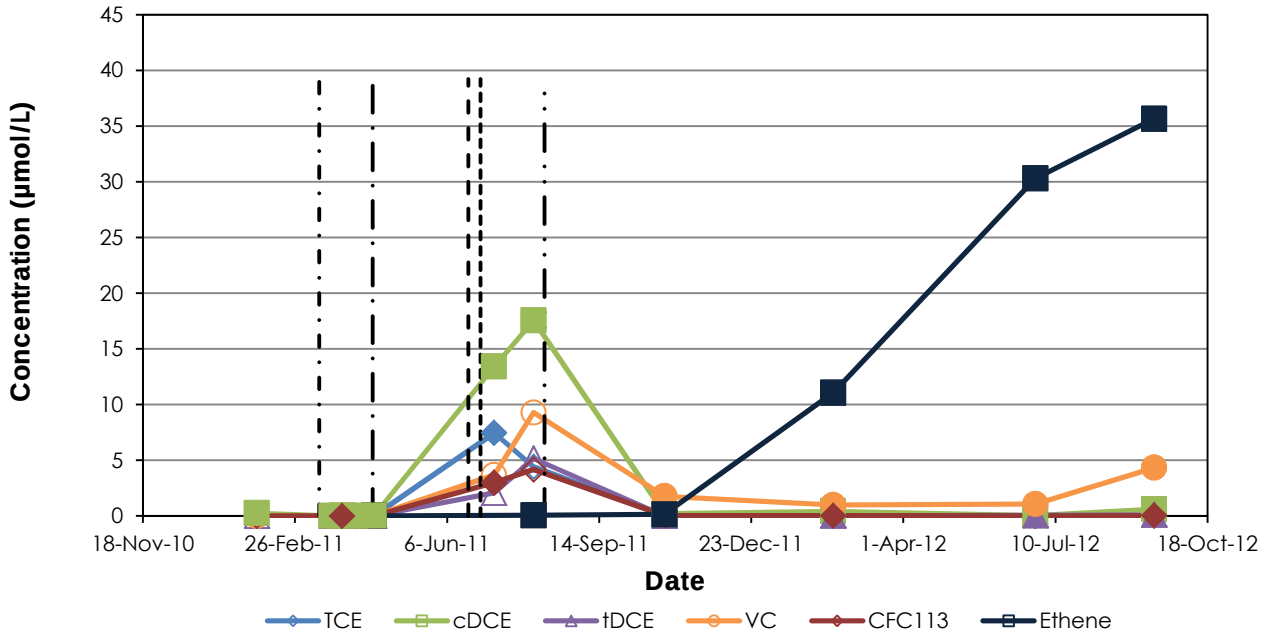
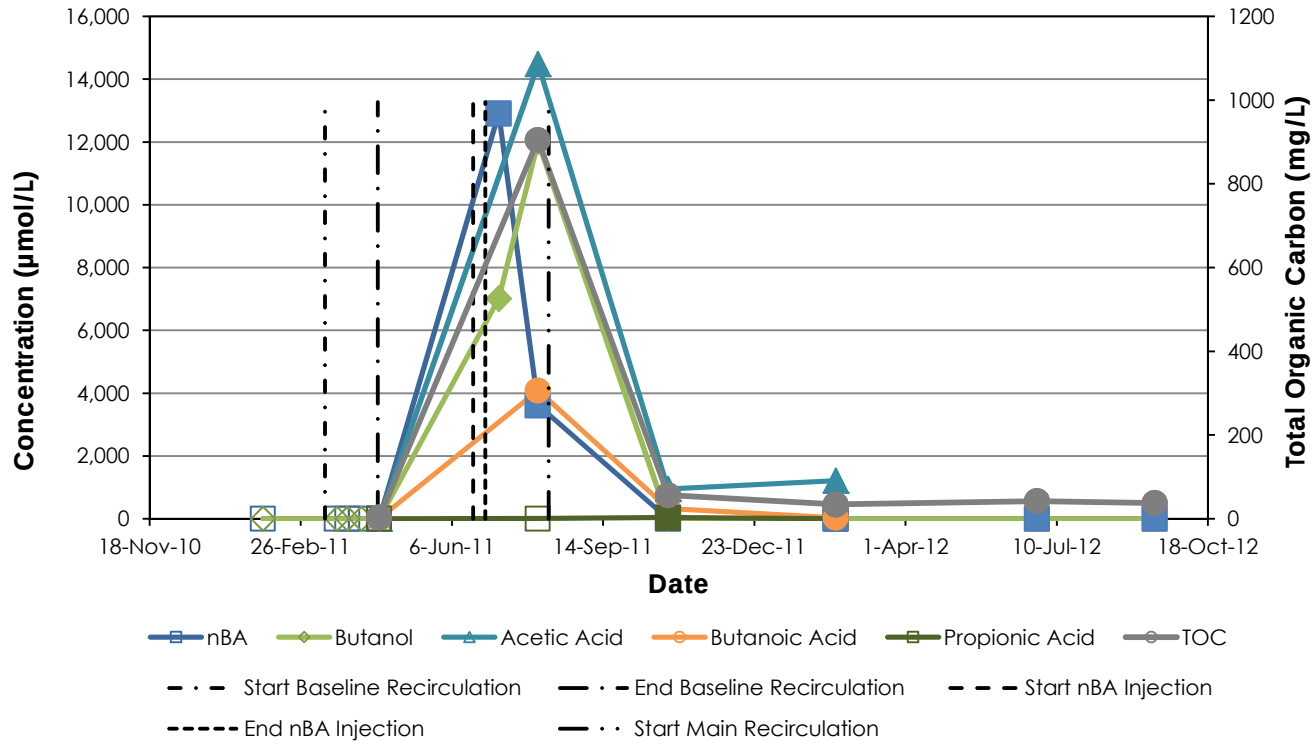
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0003D.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0003E - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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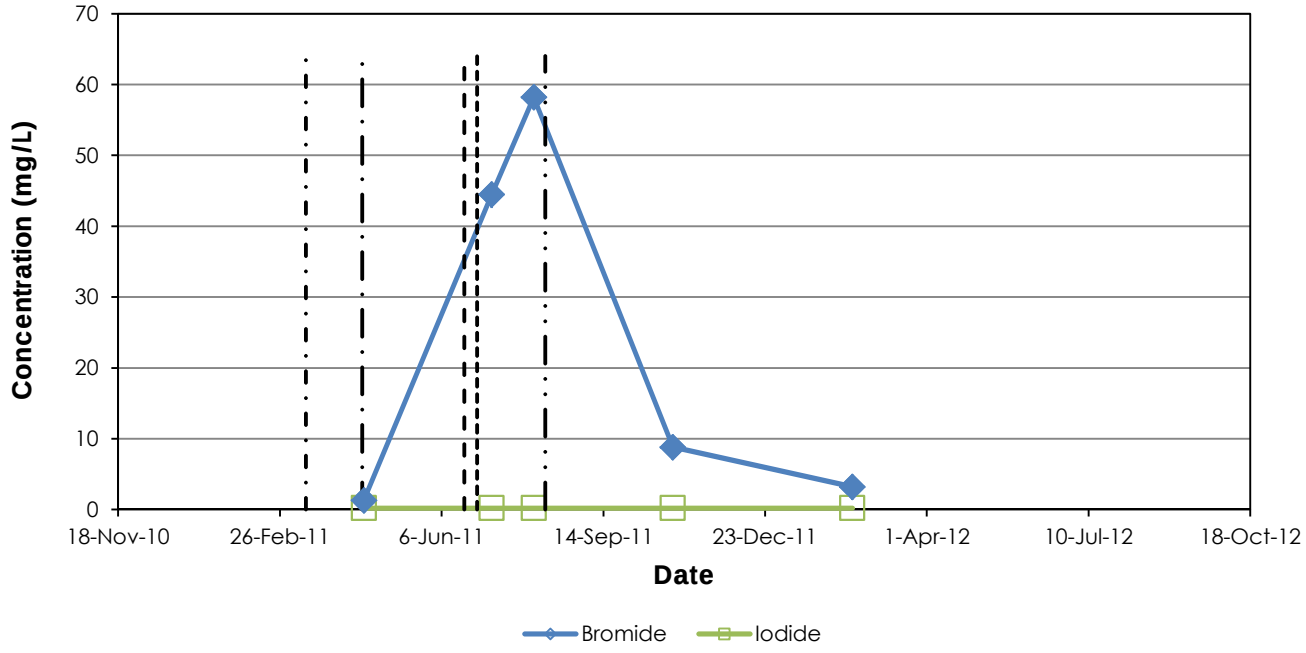
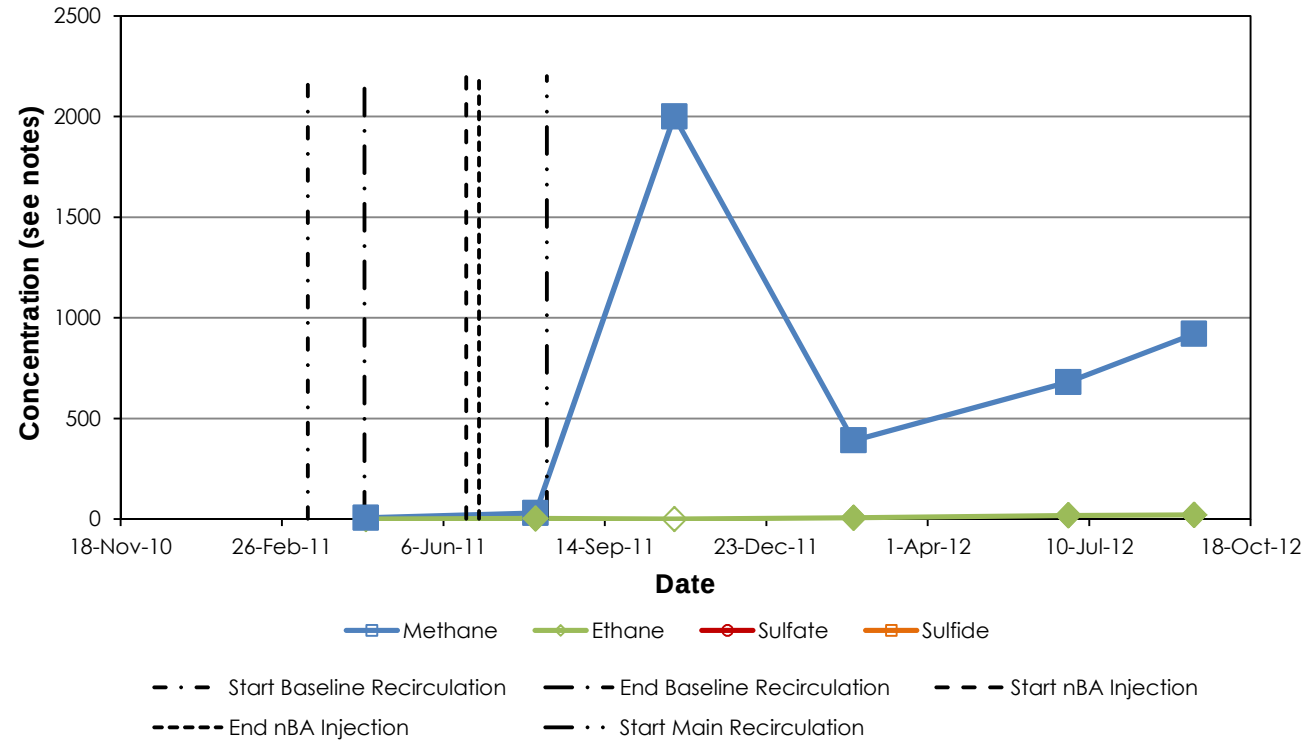
Figure **E-2-17a**

P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0003E.xlsx]Plot 2

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0003E - Tracer and Geochemical Parameter Time Trends

Launch Complex 34, Cape Canaveral, FL

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Figure **E-2-17b**

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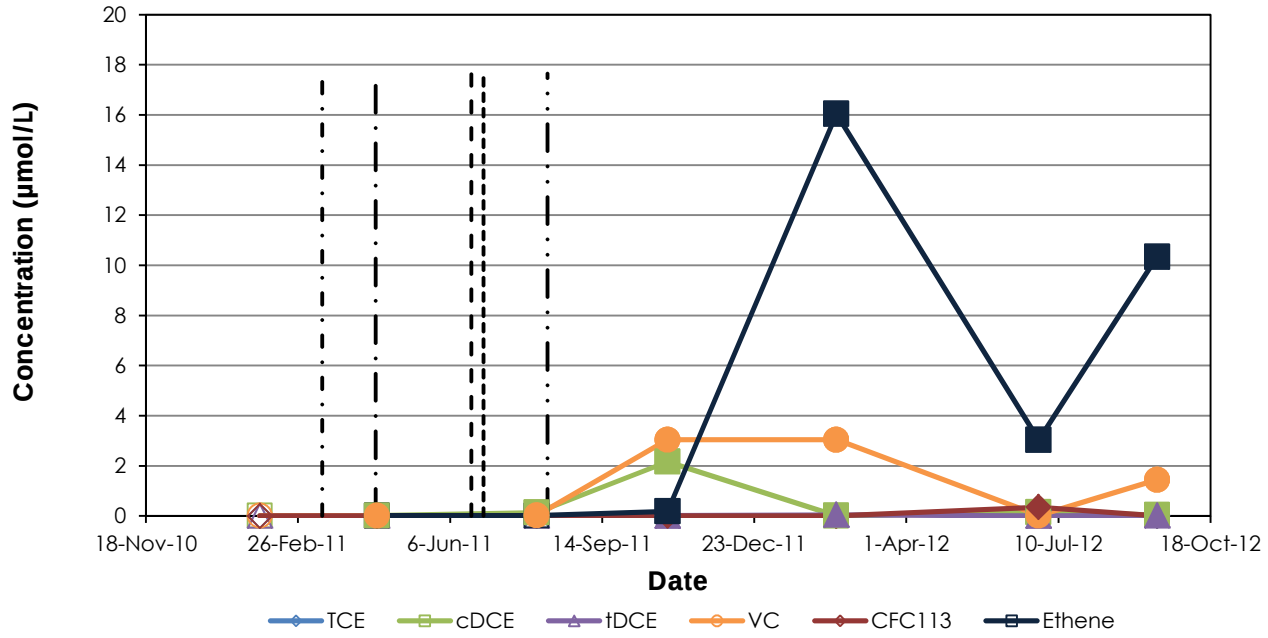
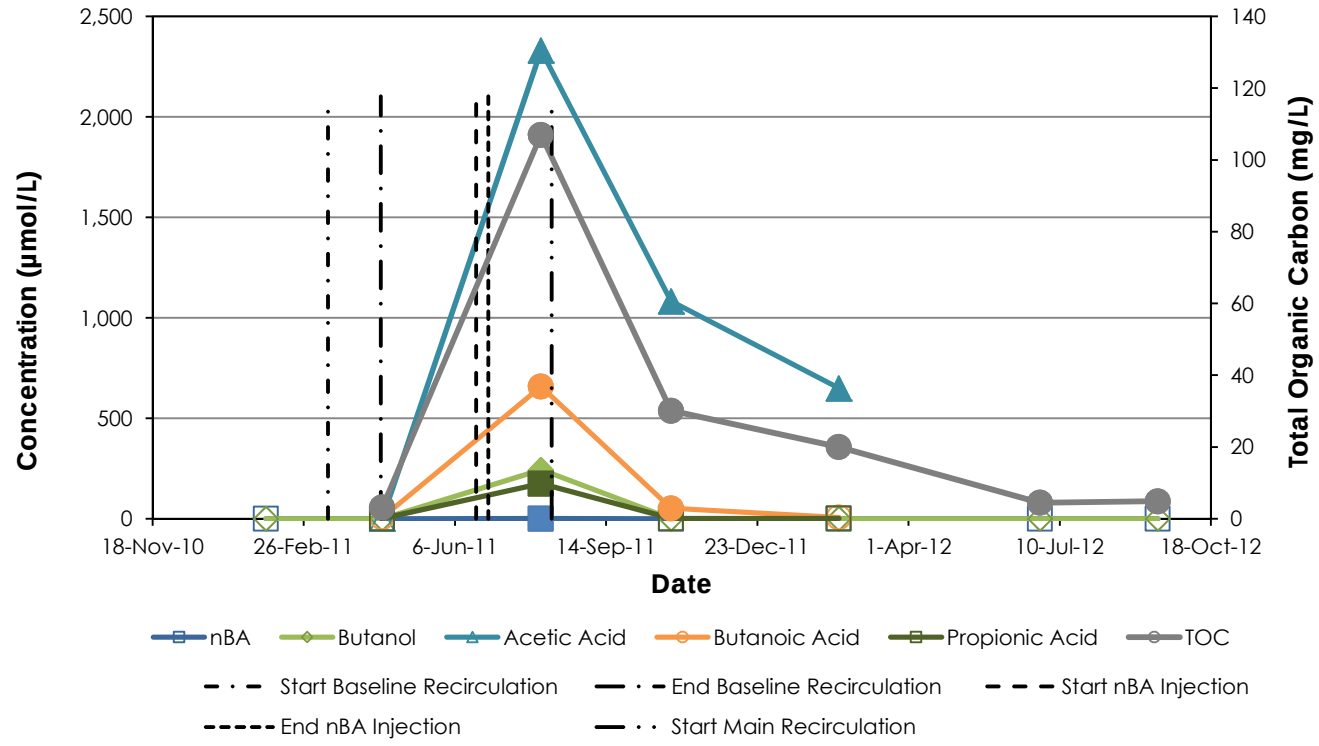
P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[BW0003E.xlsx]Plot 2

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

BW0003F - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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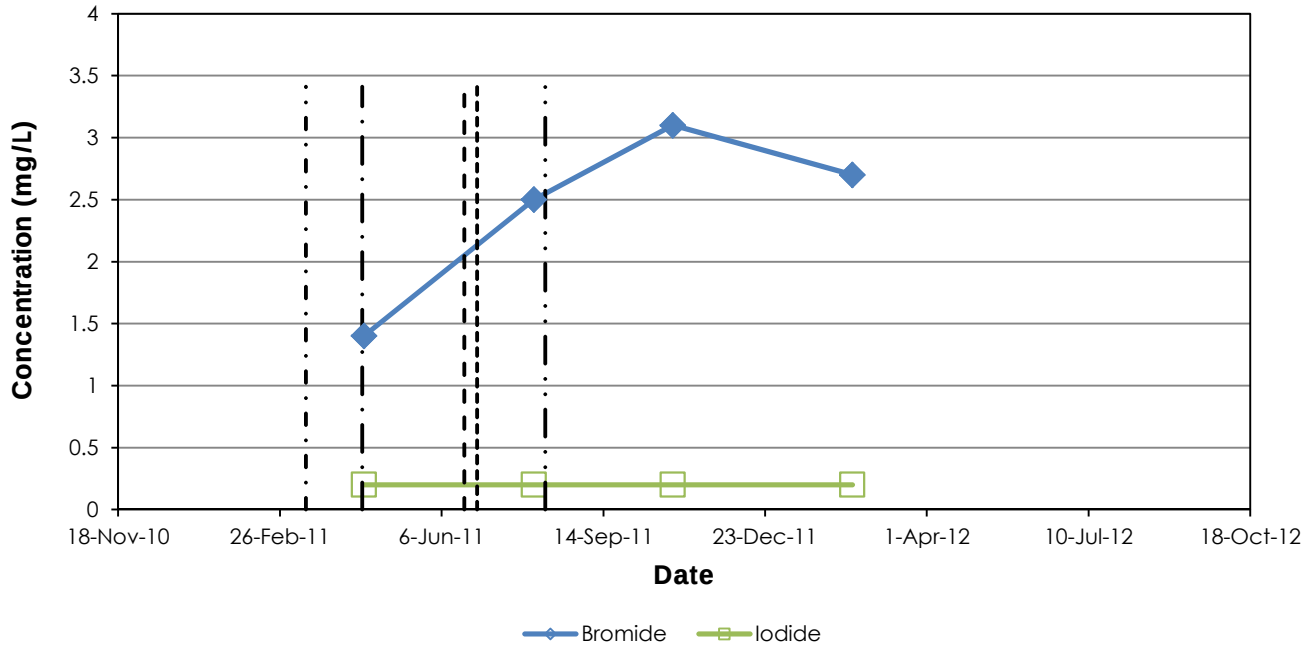
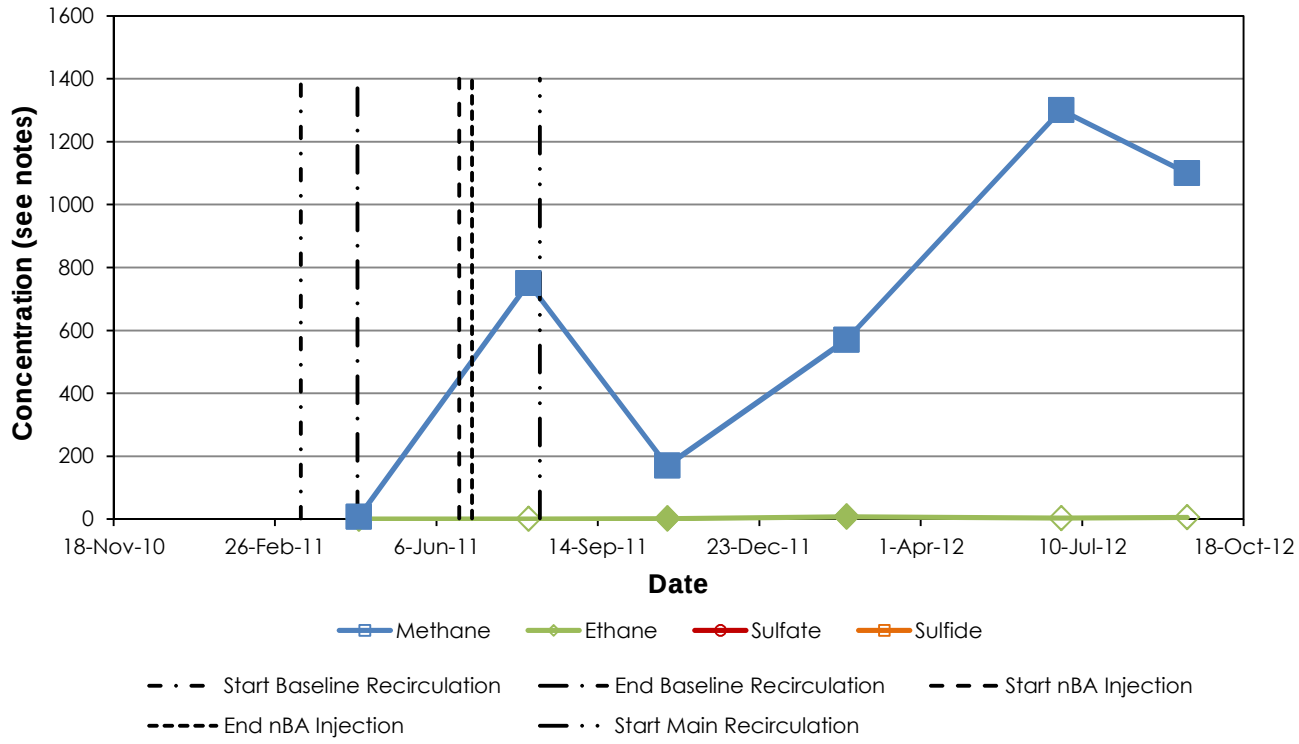
Figure **E-2-18a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[BW0003F.xlsx]Plot 2

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

BW0003F - Tracer and Geochemical Parameter Time Trends

Launch Complex 34, Cape Canaveral, FL

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Figure **E-2-18b**

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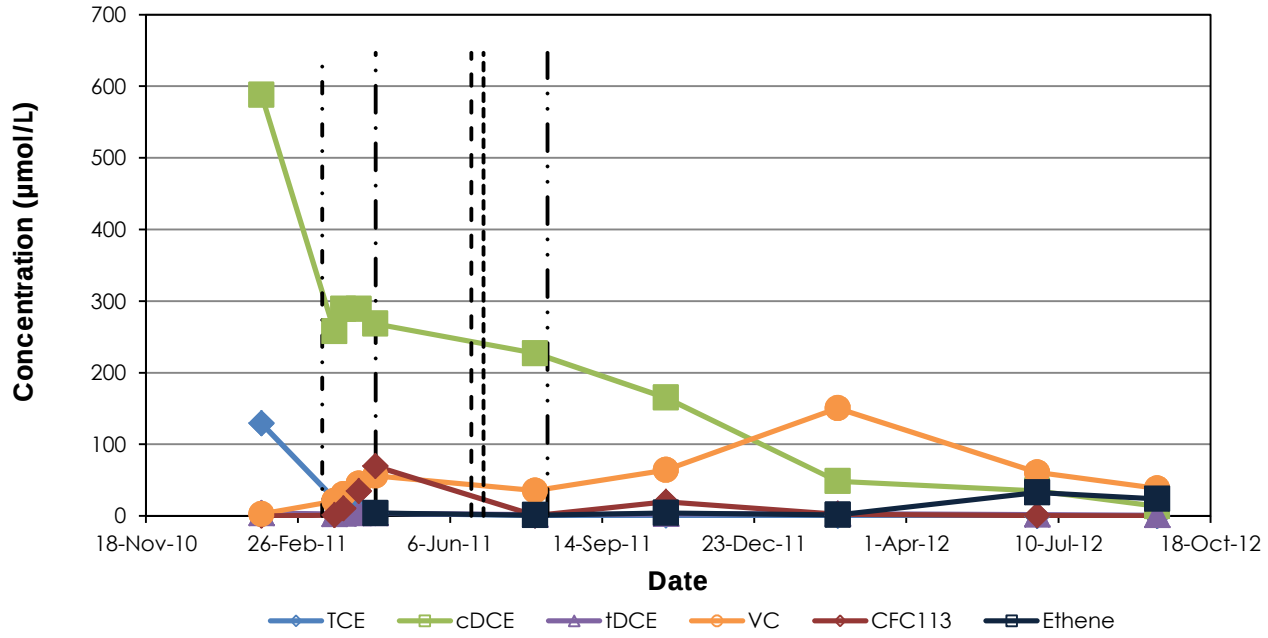
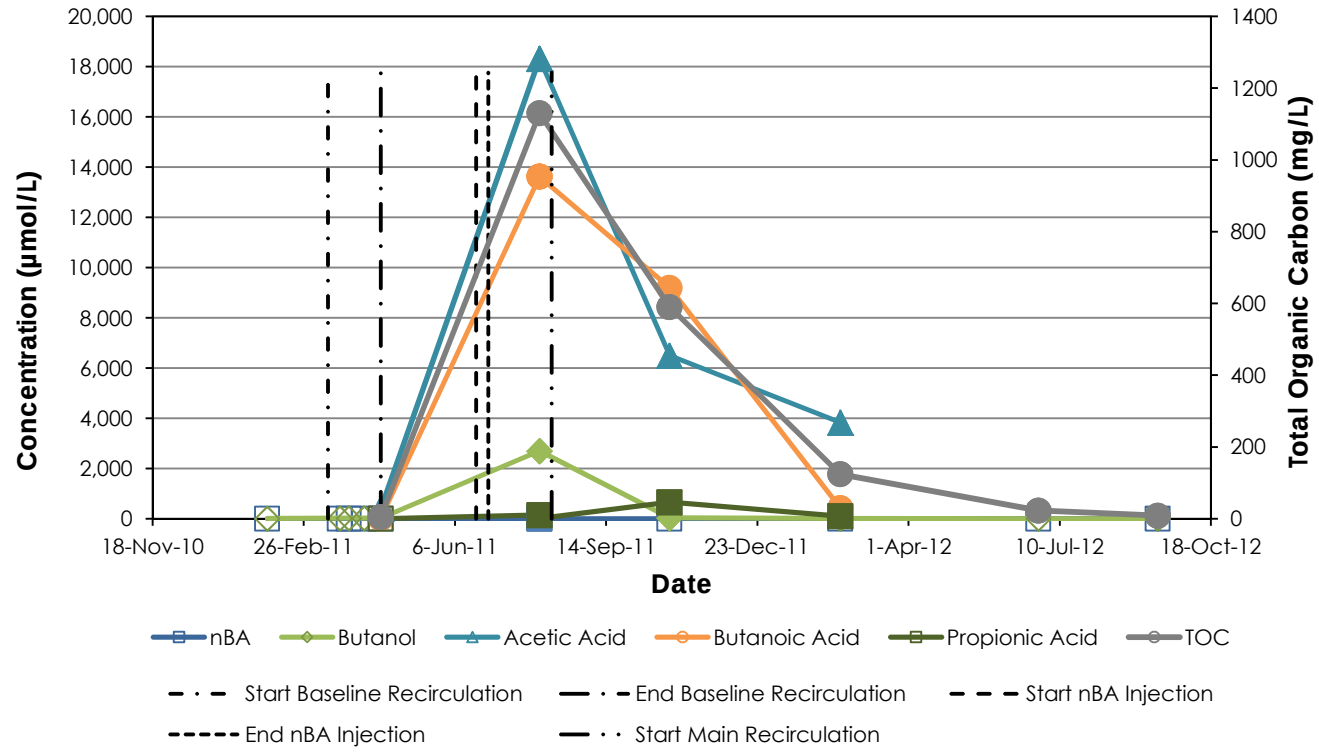
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[BW0003F.xlsx]Plot 2

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

IW0002D - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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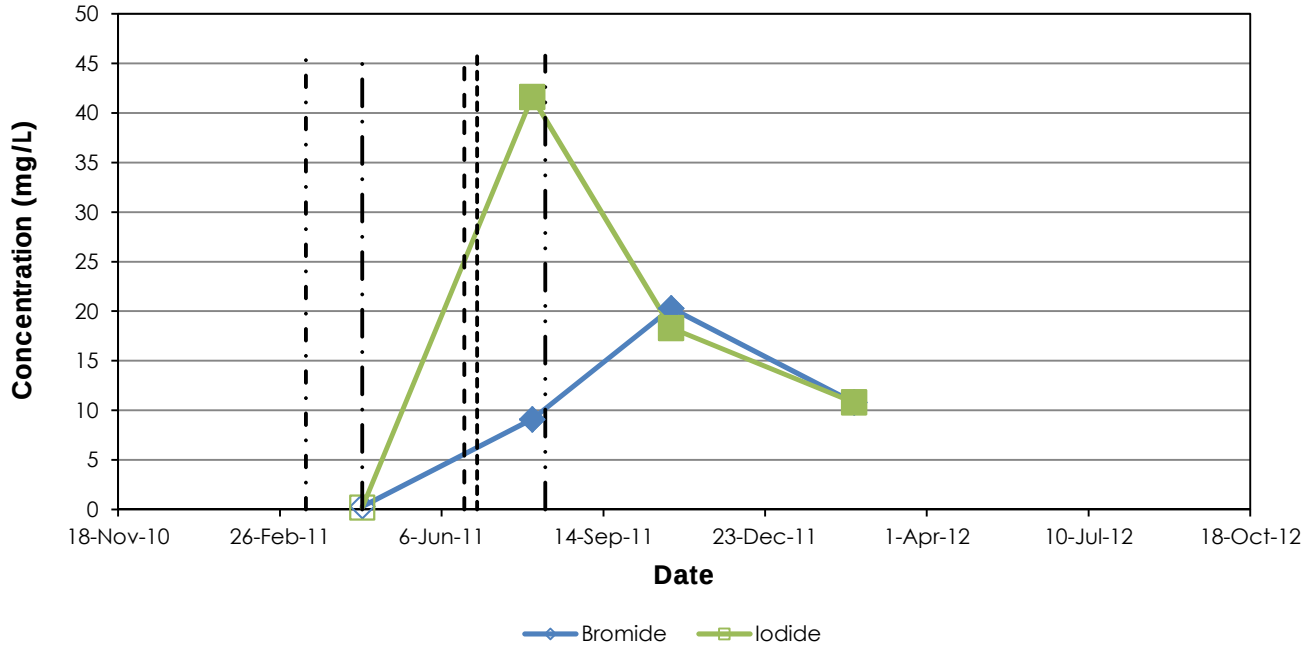
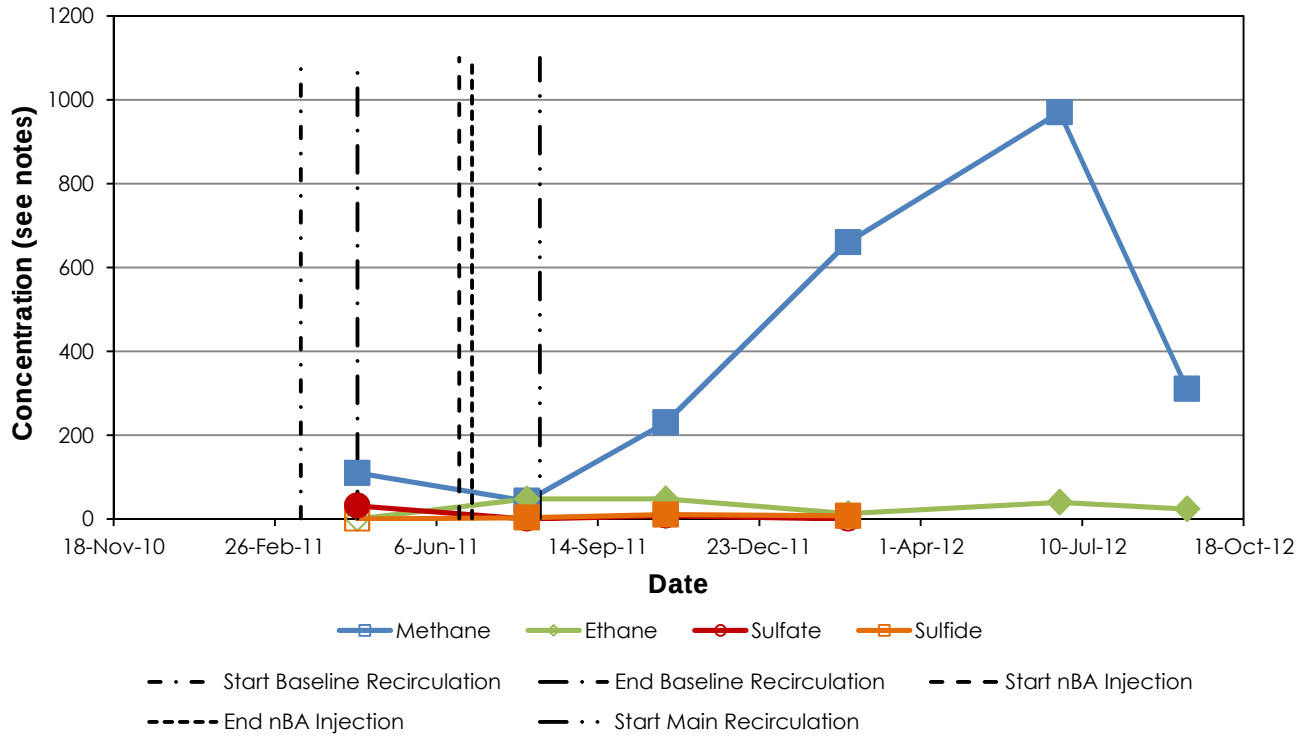
Figure **E-2-19a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[IW0002D.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

IW0002D - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-19b**

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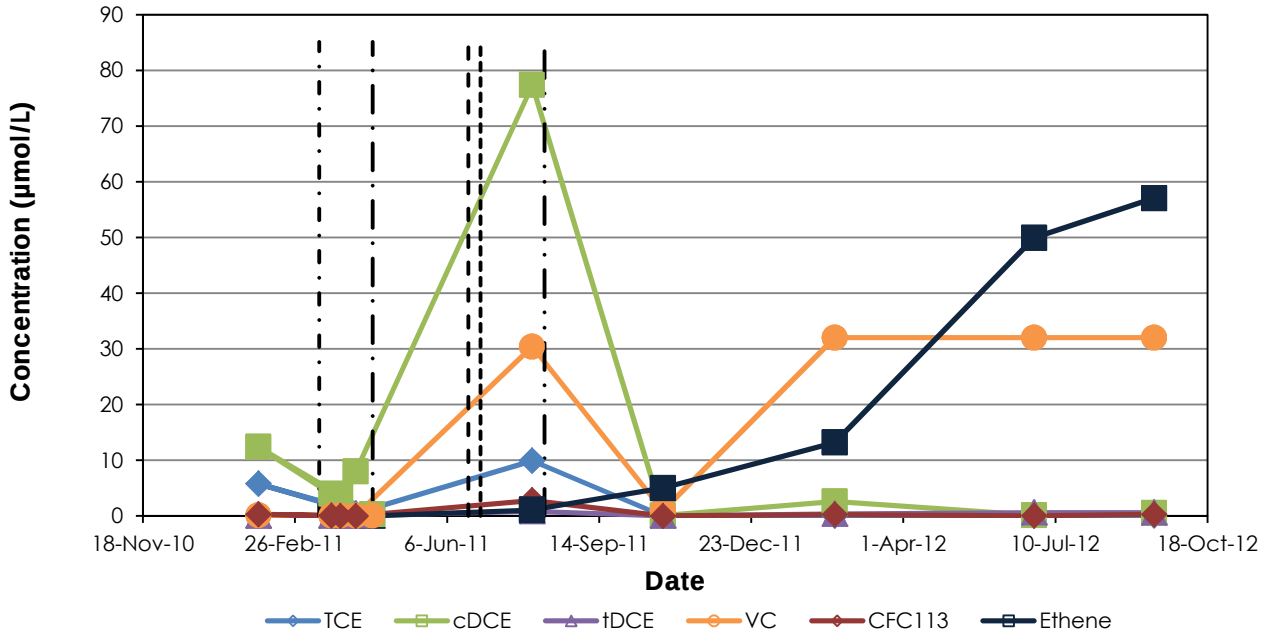
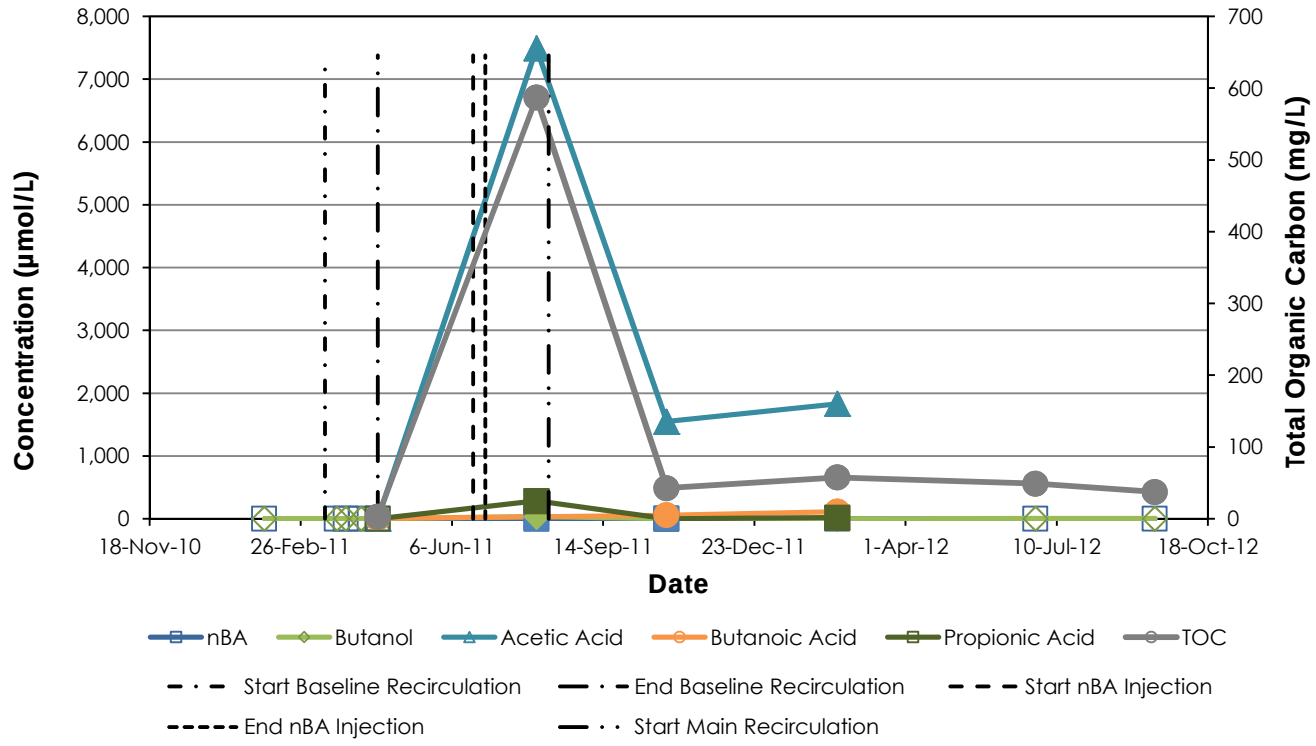
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[IW0002D.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

IW0002D1 - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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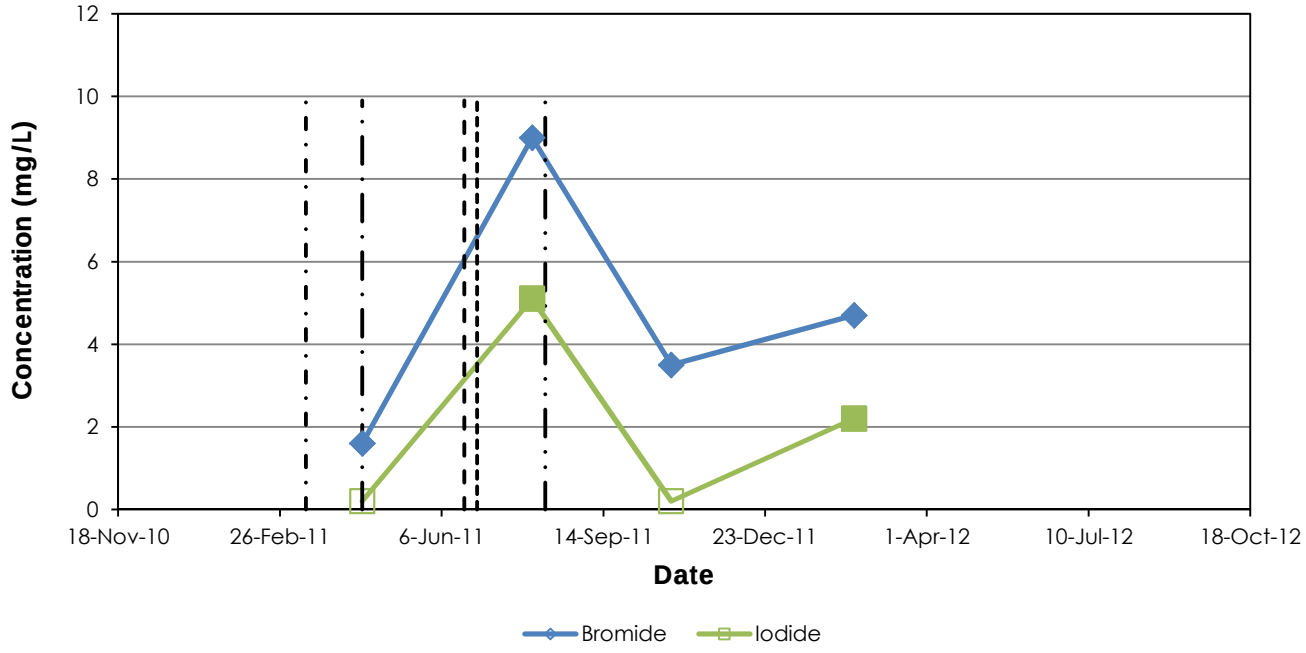
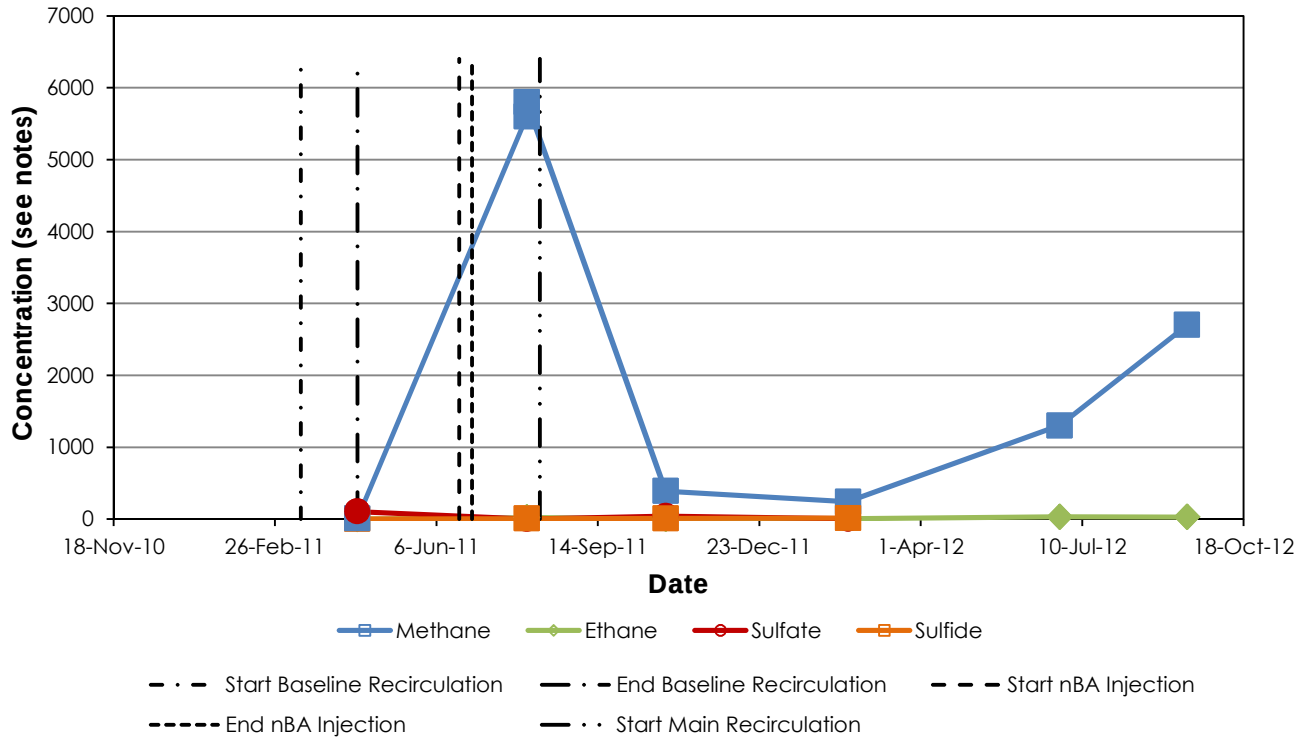
Figure **E-2-20a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[IW0002D1.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

IW0002D1 - Tracer and Geochemical Parameter Time Trends

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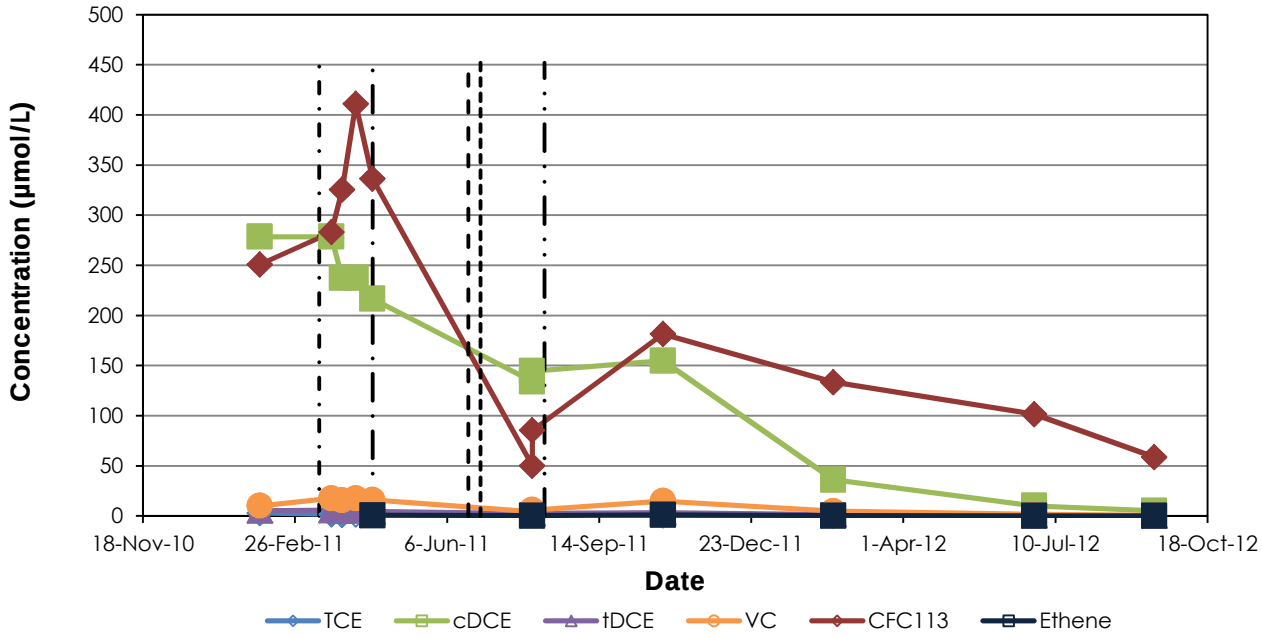
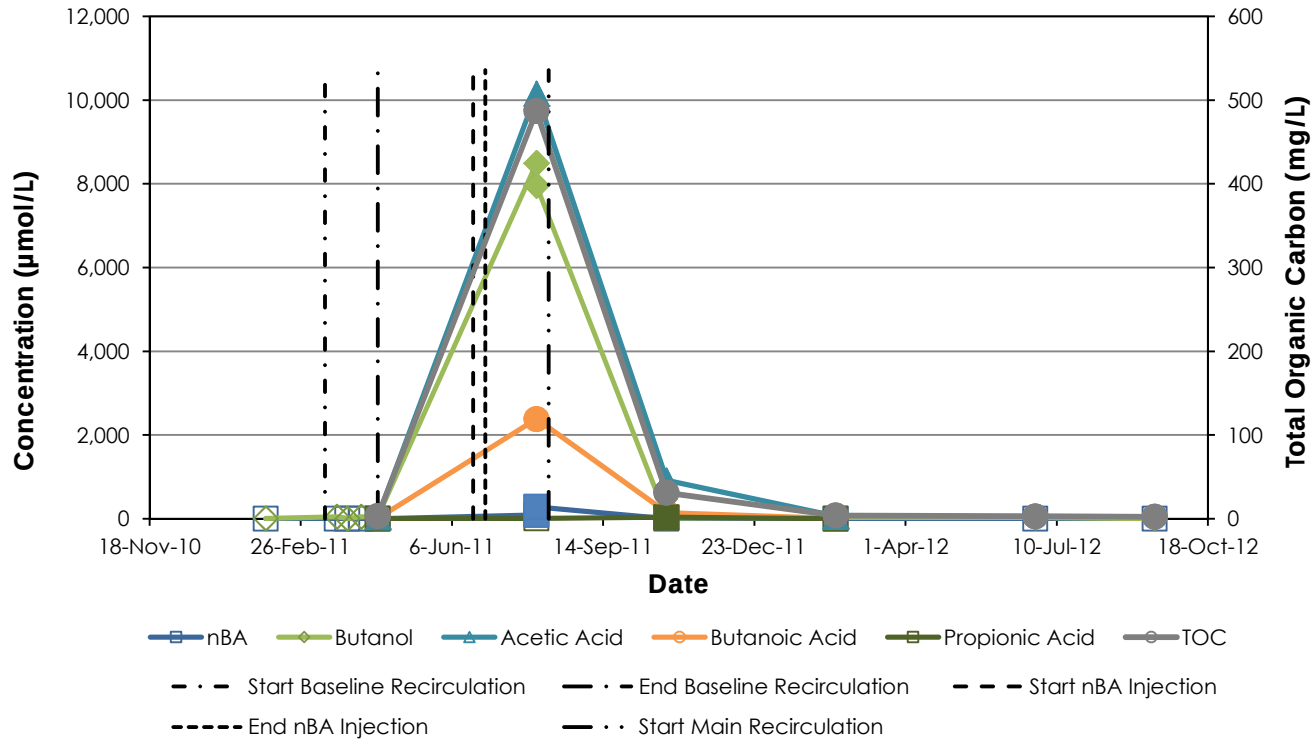
Figure **E-2-20b**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130218\[IW0002D1.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

IW0002I - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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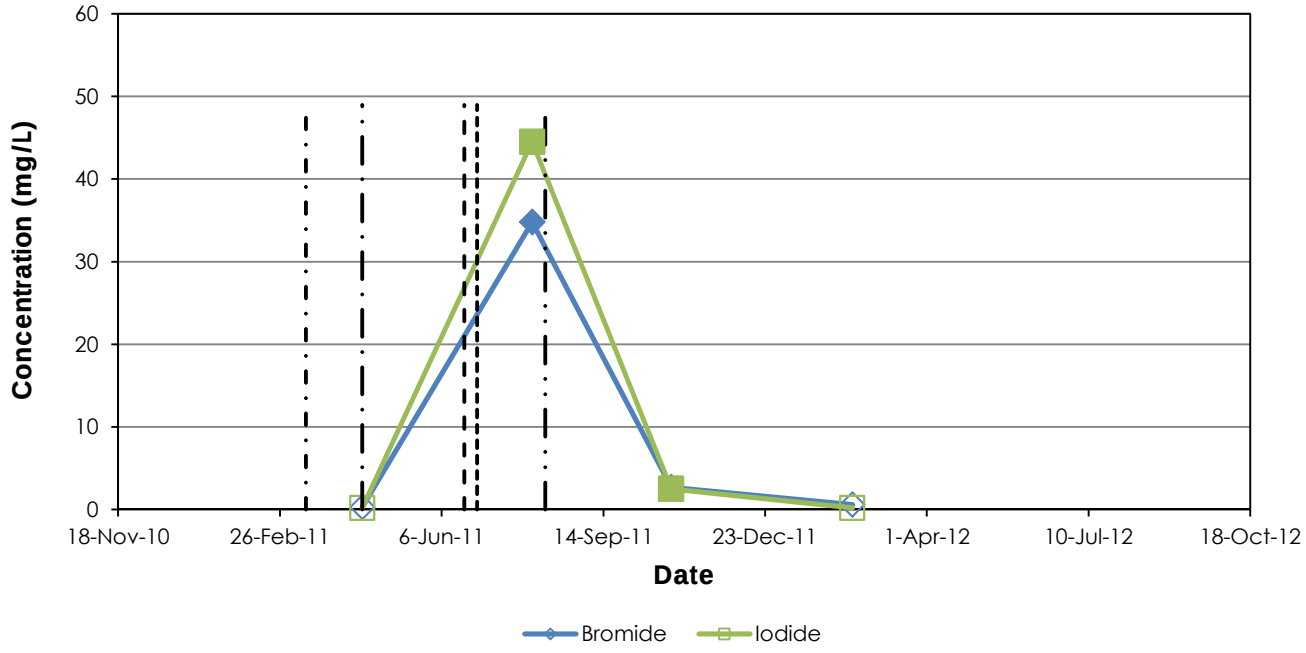
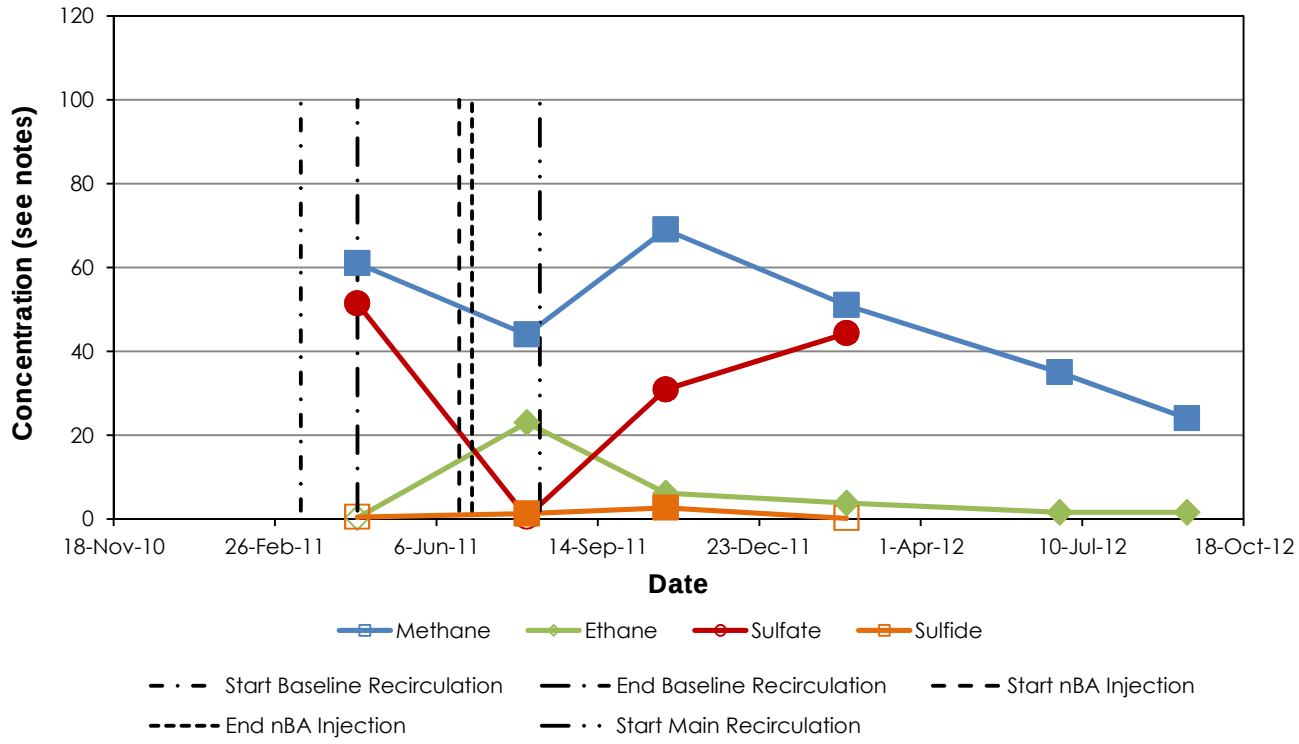
Figure **E-2-21a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[IW0002I.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

IW0002I - Tracer and Geochemical Parameter Time Trends

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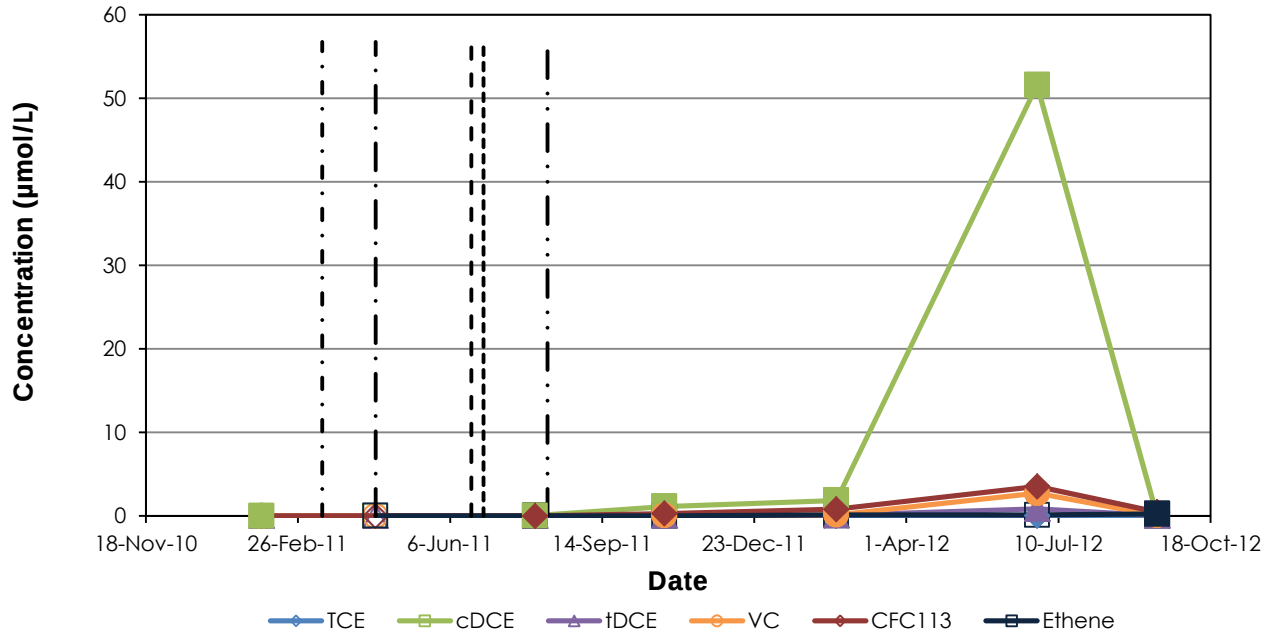
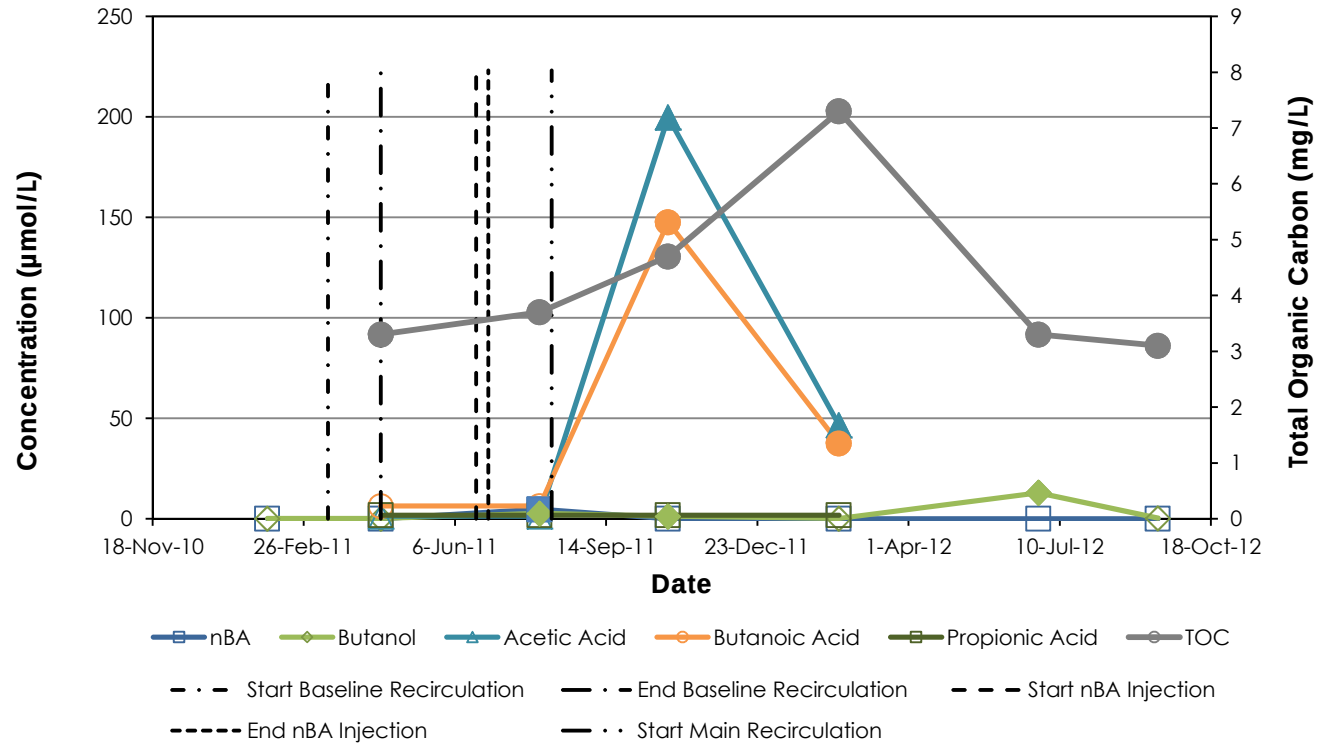
Figure **E-2-21b**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[IW0002I.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

IW0076 - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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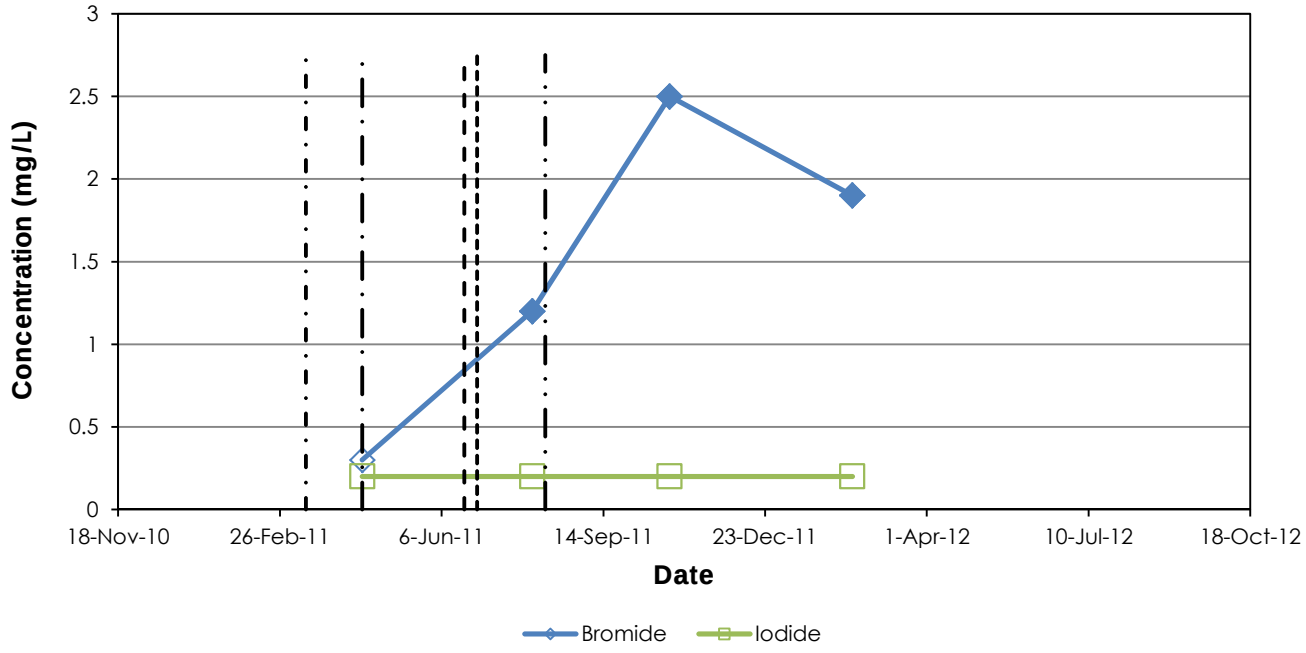
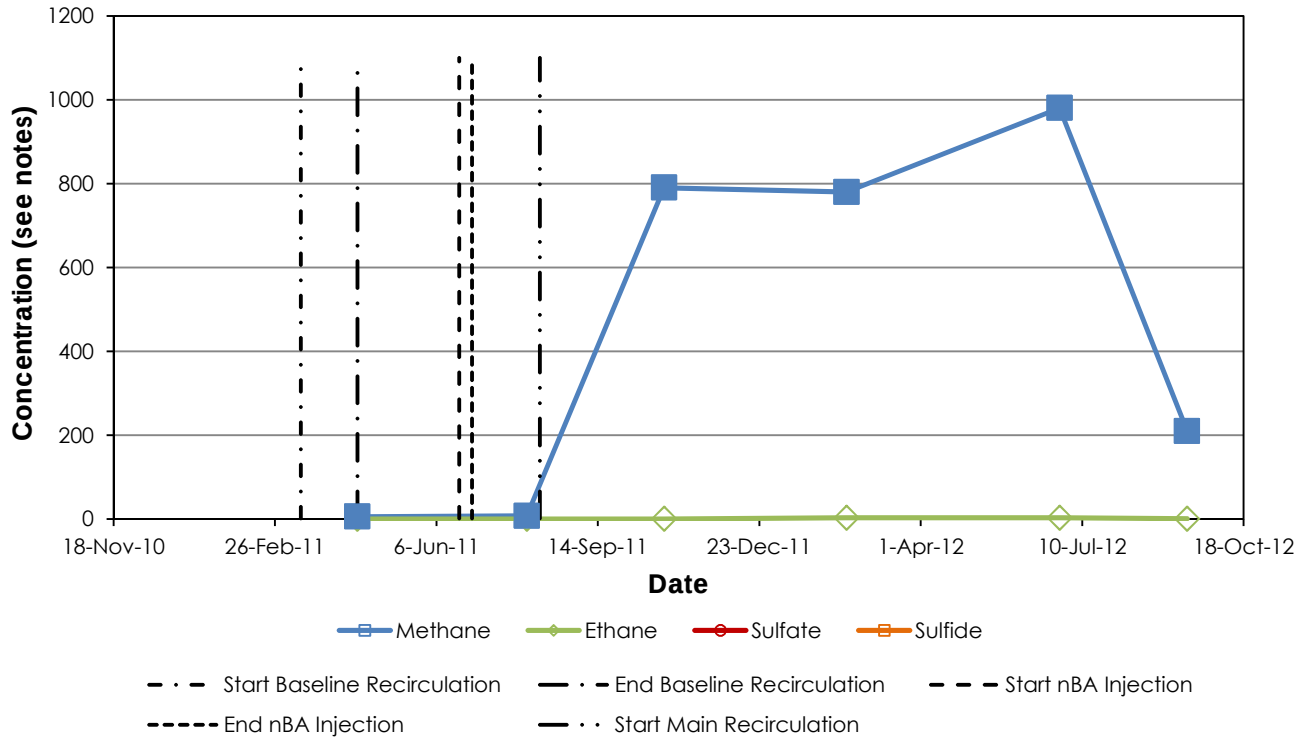
Figure **E-2-22a**

\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[IW0076.xlsx]Plot 1

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

IW0076 - Tracer and Geochemical Parameter Time Trends

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Figure **E-2-22b**

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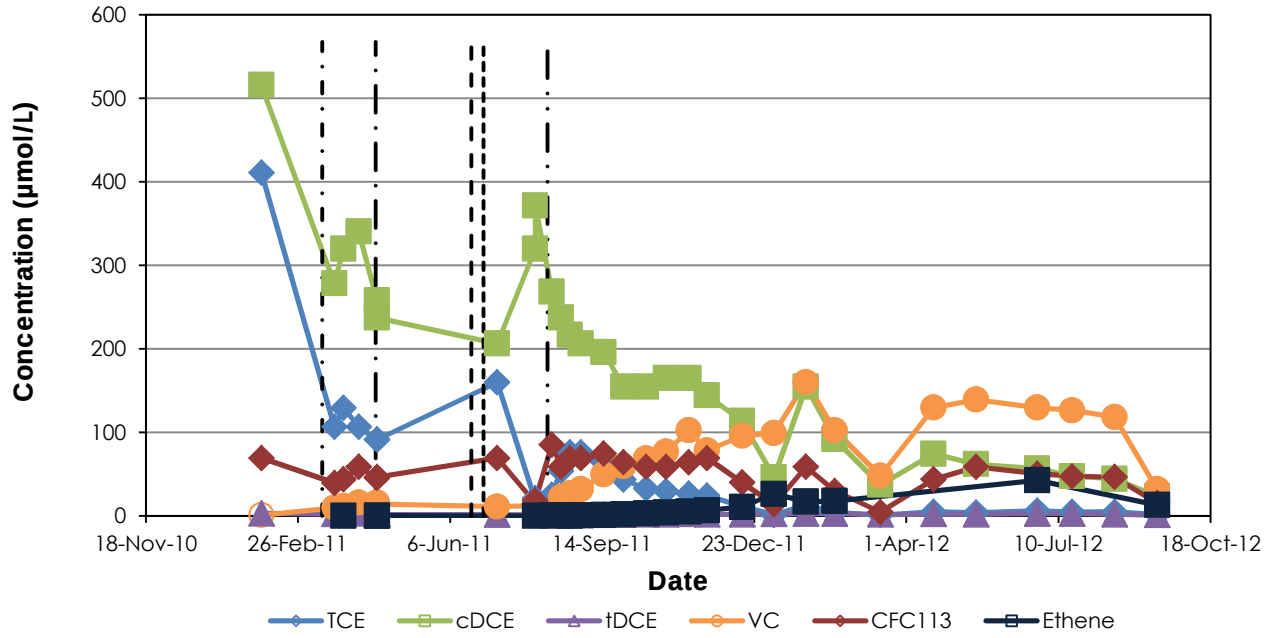
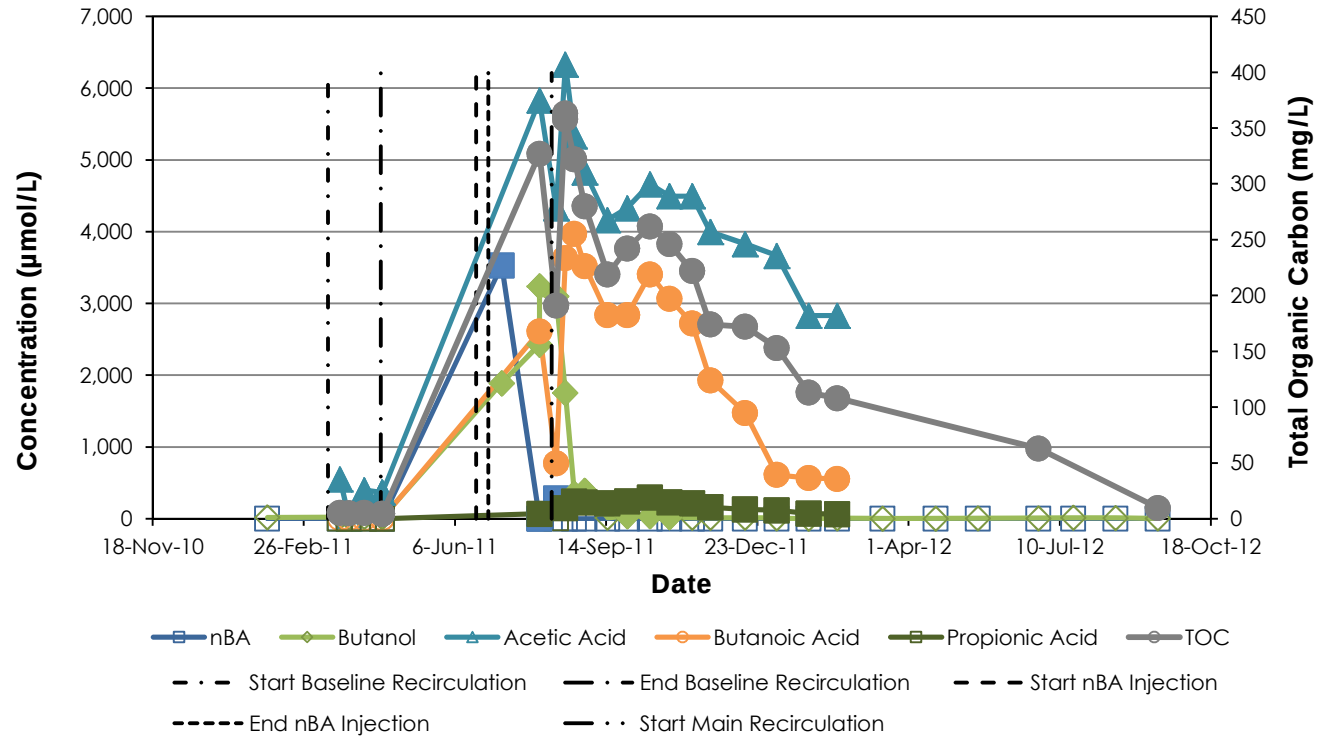
\\Guelph-01\Data\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\[IW0076.xlsx]Plot 1

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

RW0007 - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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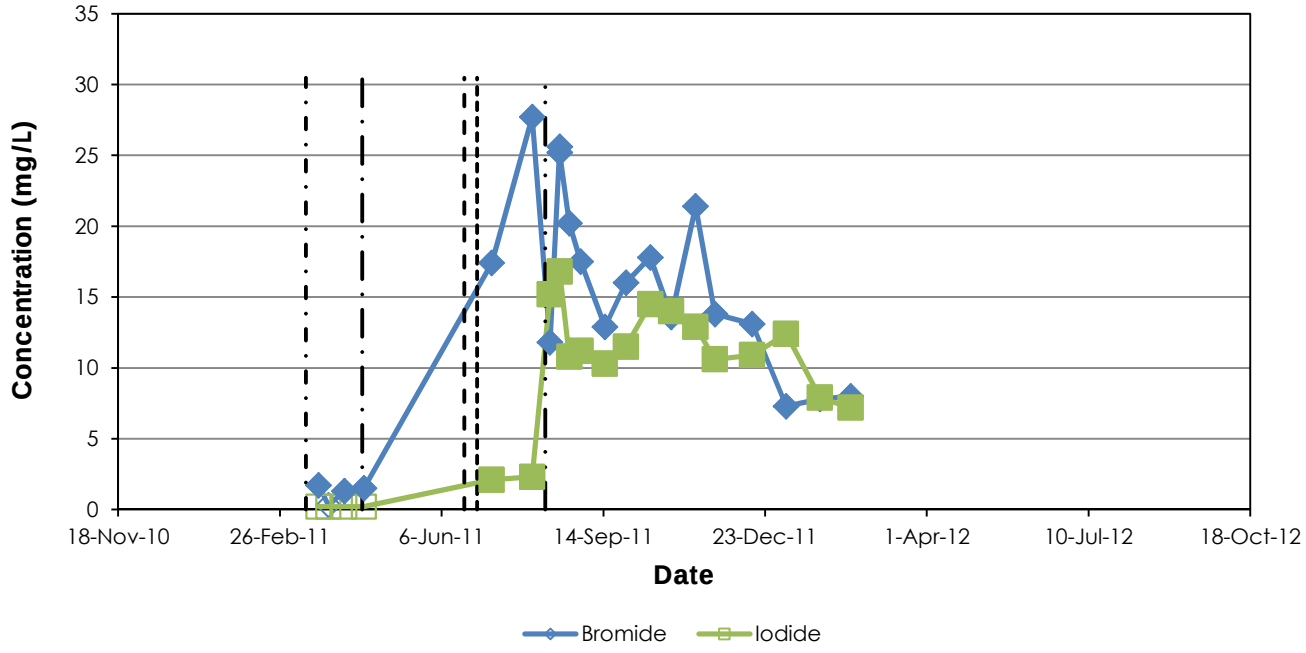
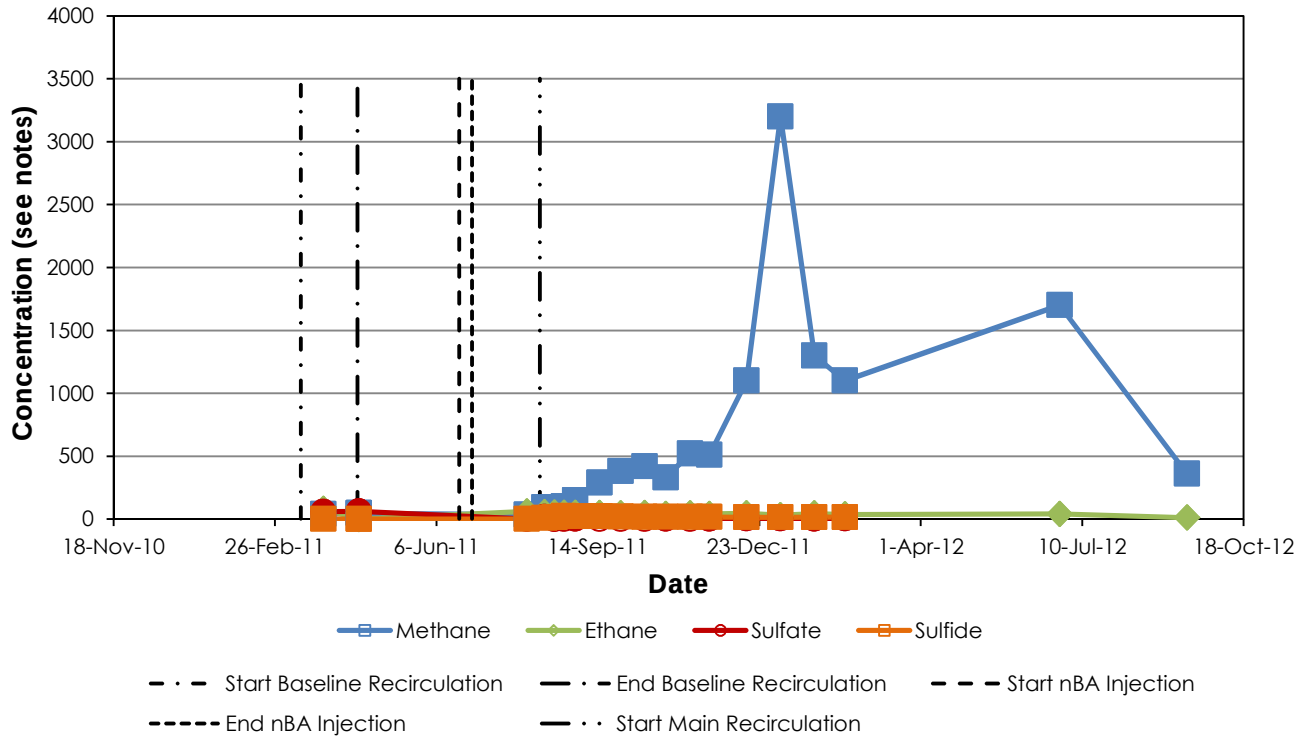
Figure **E-2-23a**

P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[RW0007.xlsx]Plot 2

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

RW0007 - Tracer and Geochemical Parameter Time Trends

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Figure

E-2-23b

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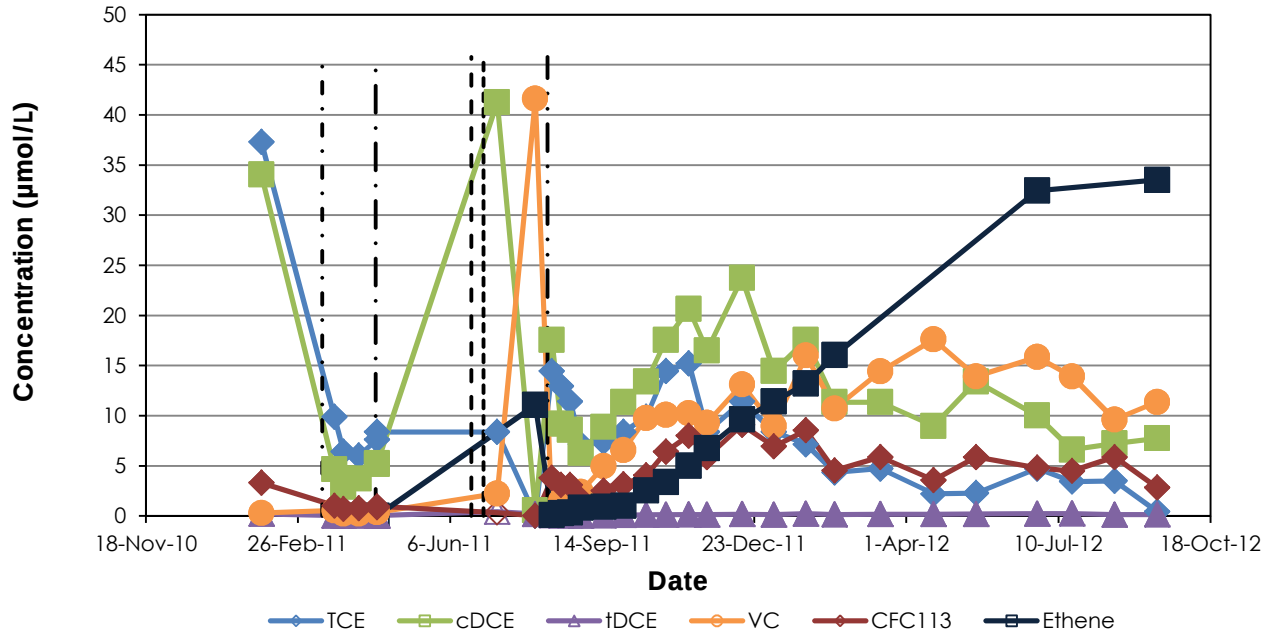
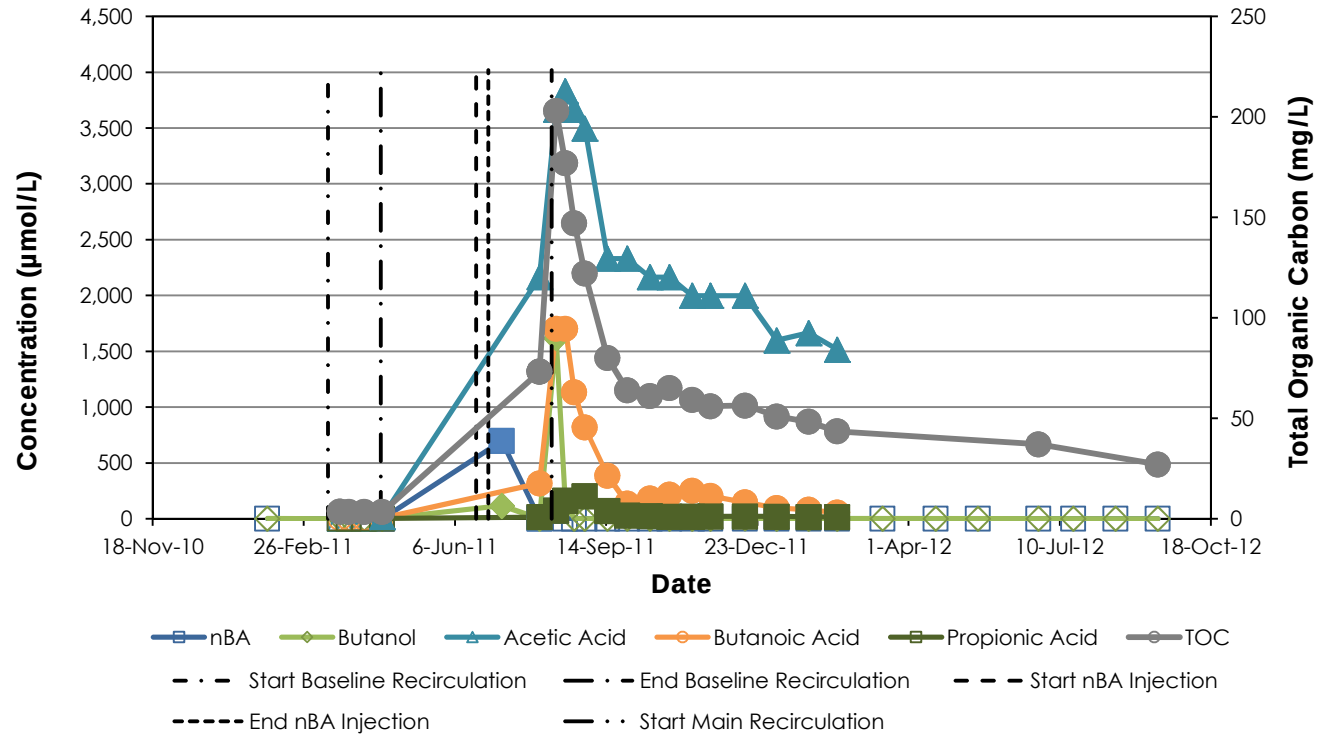
P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[RW0007.xlsx]Plot 2

A) Volatile Organic Compounds



B) Donors and Volatile Fatty Acids



Notes:
µmol/ L - micromoles per liter
mg/L - milligrams per liter
cDCE - cis-1,2-Dichloroethene
CFC113 - 1,1,2-Trichloro-1,2,2-trifluoroethane
nBA - n-Butyl acetate
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
TOC - Total Organic Carbon
VC - Vinyl chloride
Hollow symbols represent non-detects presented at the method detection limit.

RW0008 - Volatile Organic Compound, Donor and Volatile Fatty Acid Time Trends

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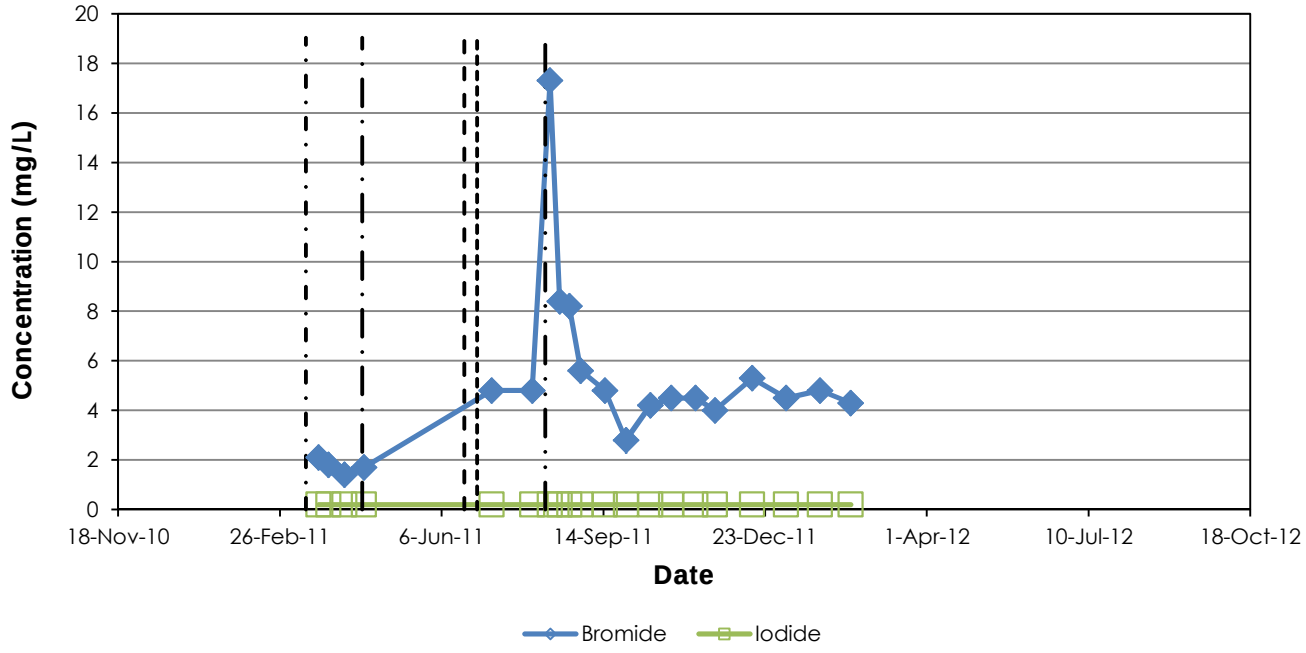
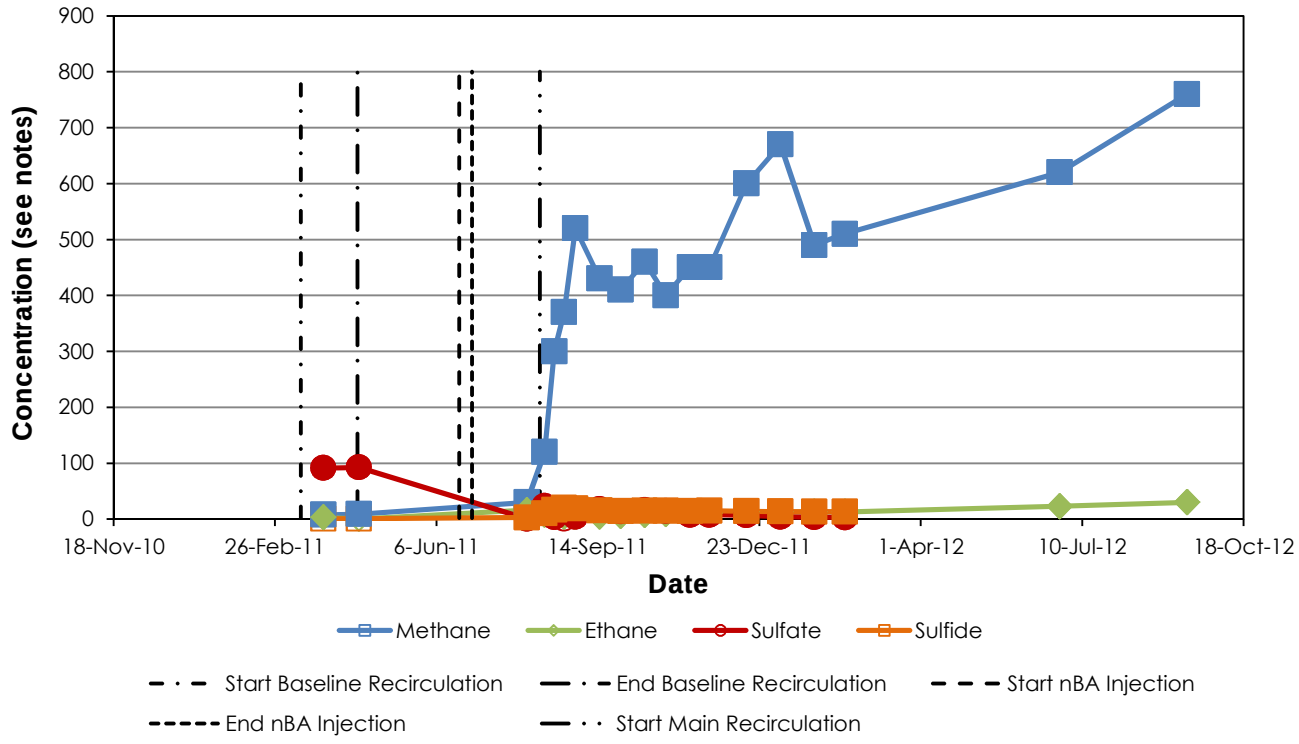
Figure **E-2-24a**

P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[RW0008.xlsx]Plot 2

C) Tracers



D) Geochemical Parameters



Notes:
mg/L - milligrams per liter
µg/L - micrograms per liter
Methane and Ethane in µg/L
Sulfate and Sulfide in mg/L.
Hollow symbols represent non-detects presented at the method detection limit.

RW0008 - Tracer and Geochemical Parameter Time Trends

Launch Complex 34, Cape Canaveral, FL

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Figure **E-2-24b**

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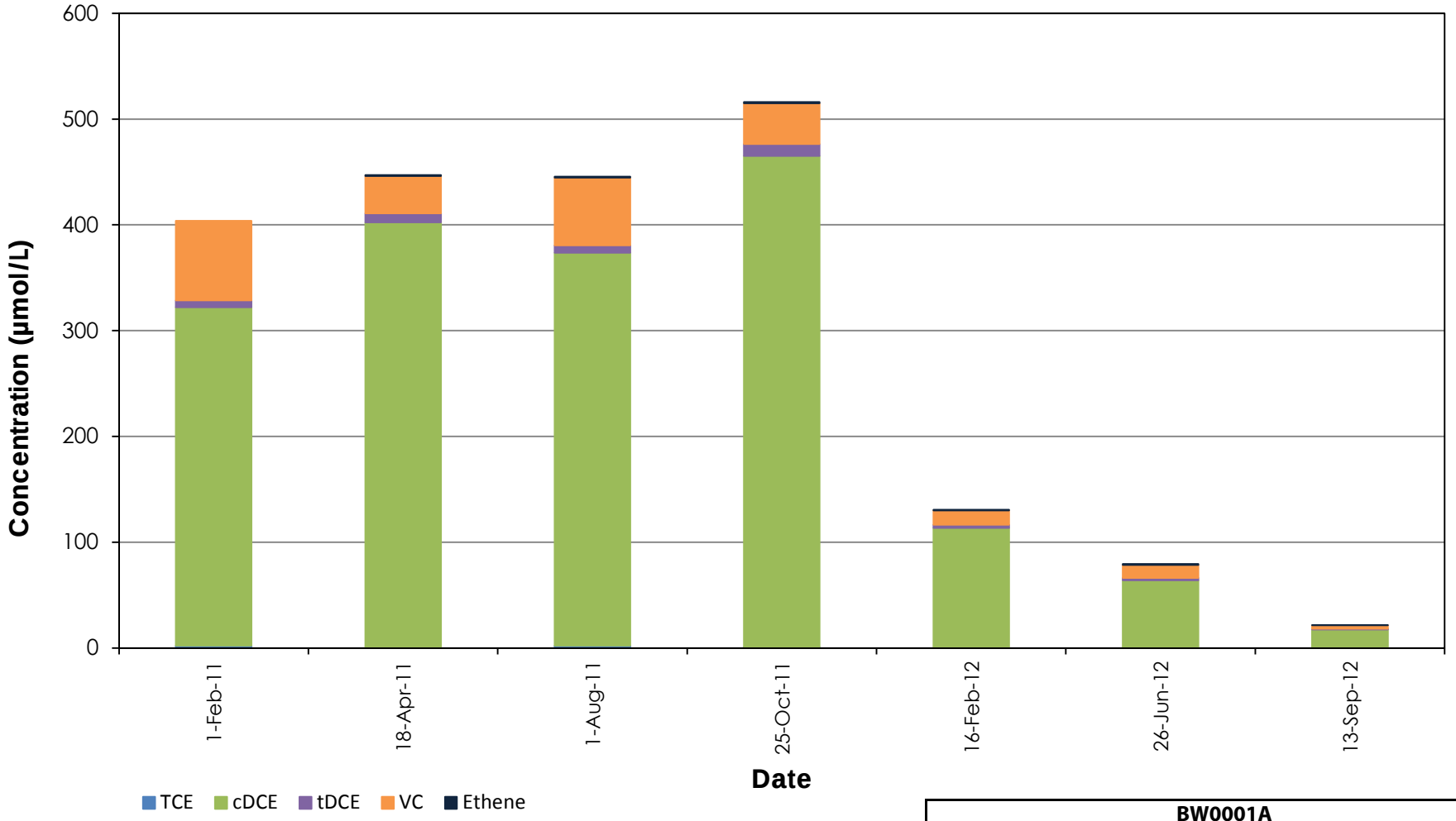
P:\PRJ\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\[RW0008.xlsx]Plot 2

ATTACHMENT E-3

DISTRIBUTION OF VOCS BY WELL (STACKED BAR CHARTS)



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0001A
Volatile Organic Compound Distribution History
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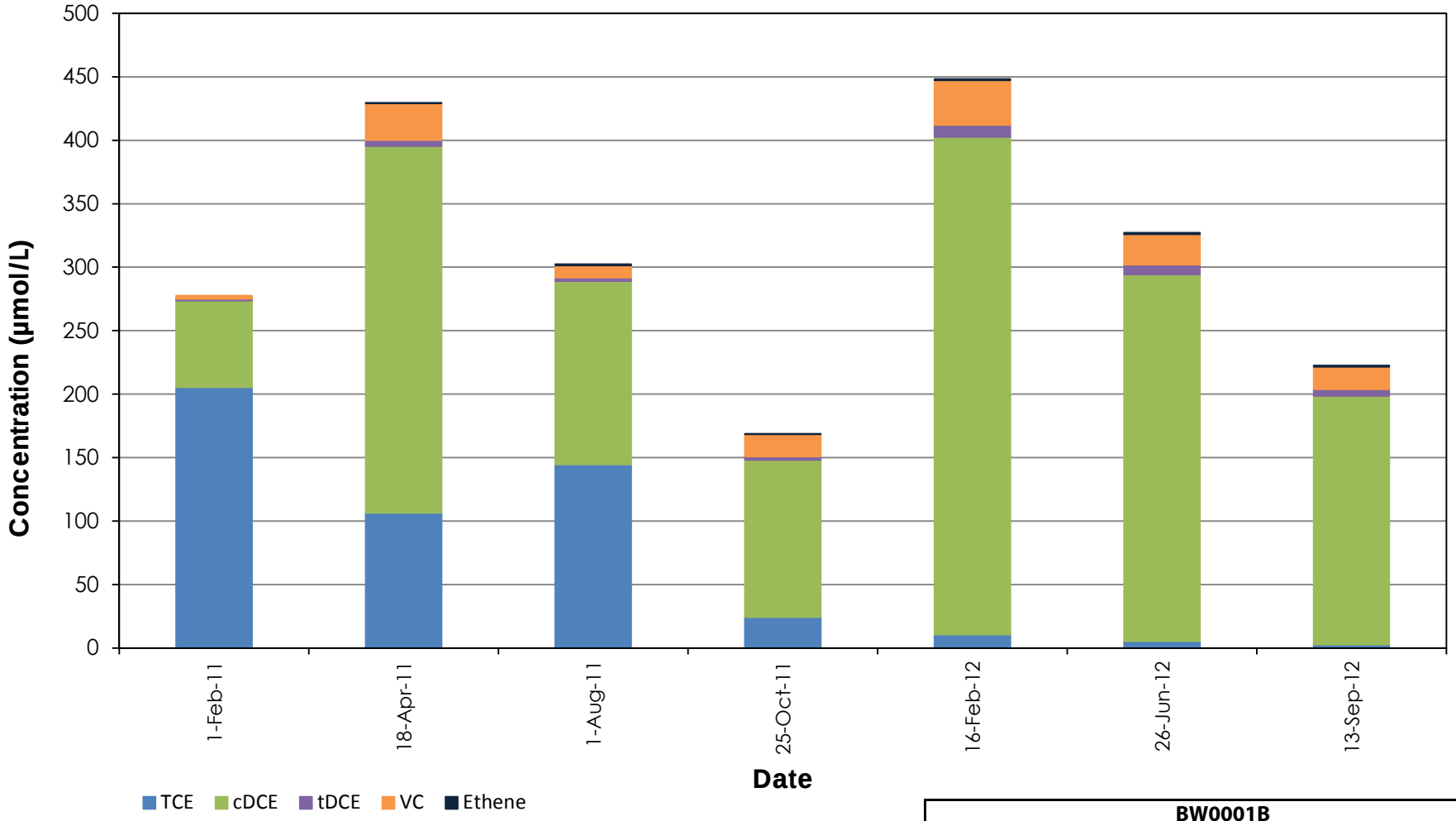
Appendix E

P:\PE\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\Stacked\[BW0001A_Stacked_20]



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0001B
Volatile Organic Compound Distribution History
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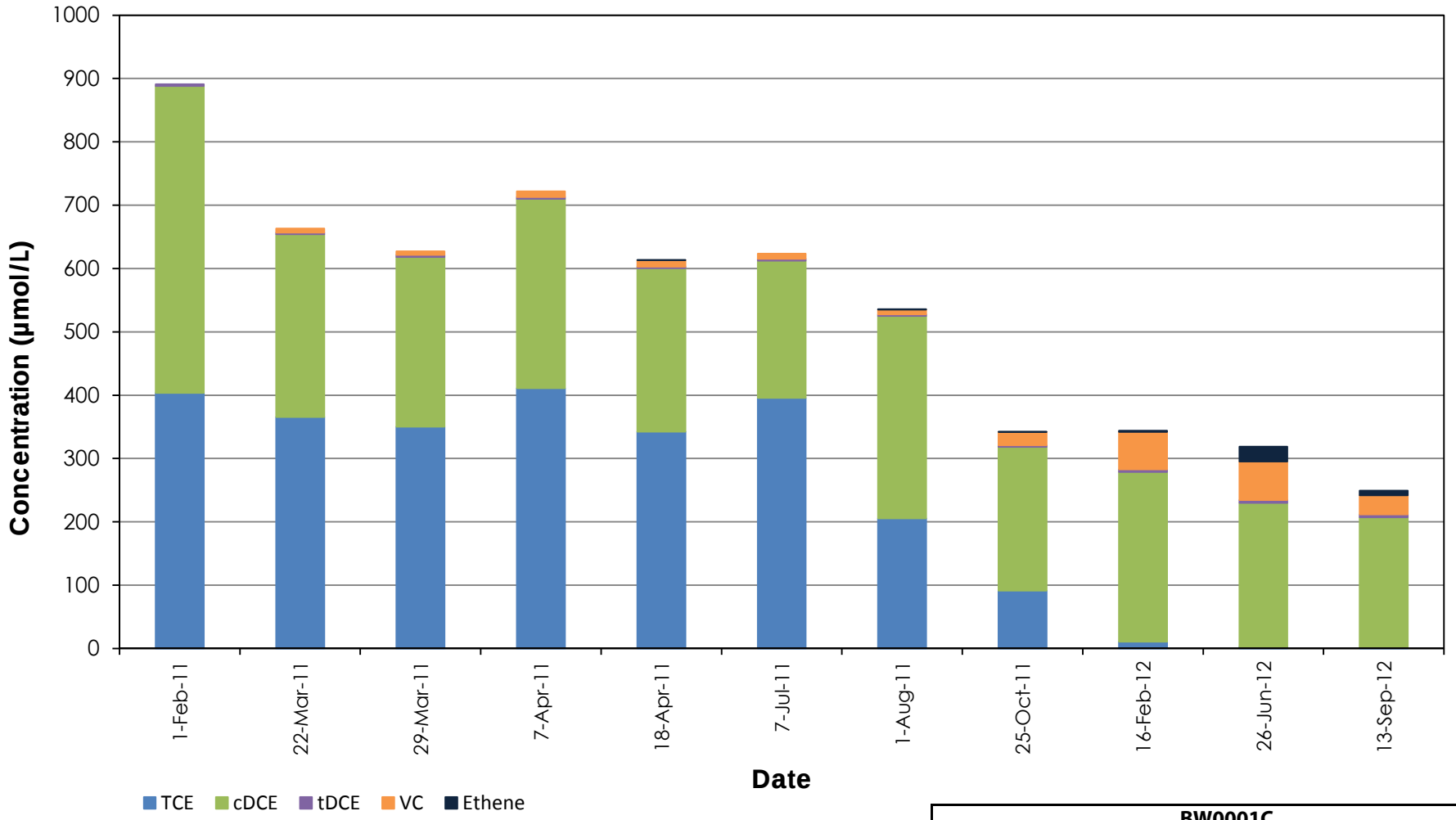
Appendix E

P:\PR\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\Stocked\BW0001B_Stocked_201:



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0001C
Volatile Organic Compound Distribution History
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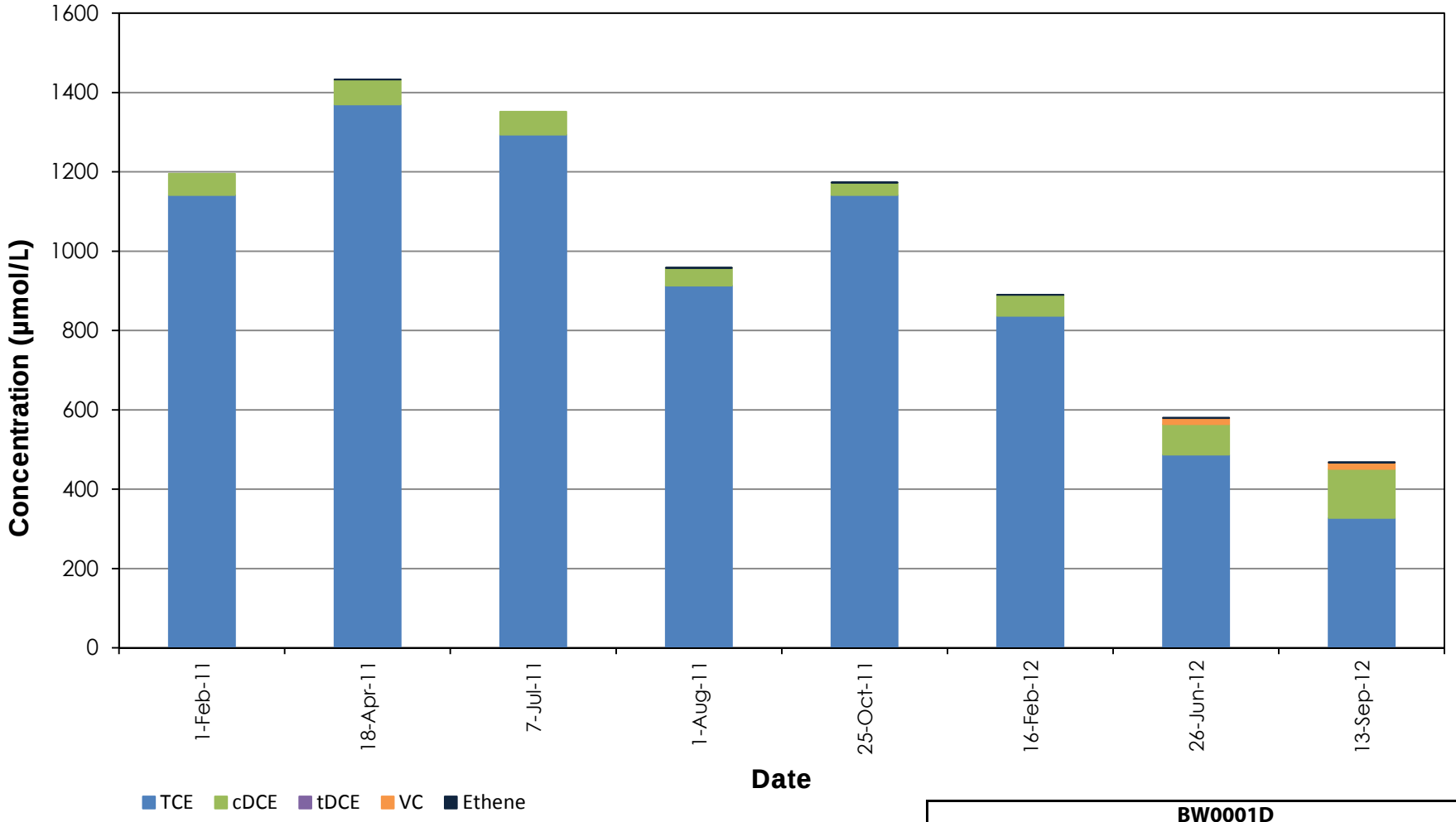
Appendix E

P:\PR\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\Stacked\{BW0001C_Stacked_201



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0001D
Volatile Organic Compound Distribution History
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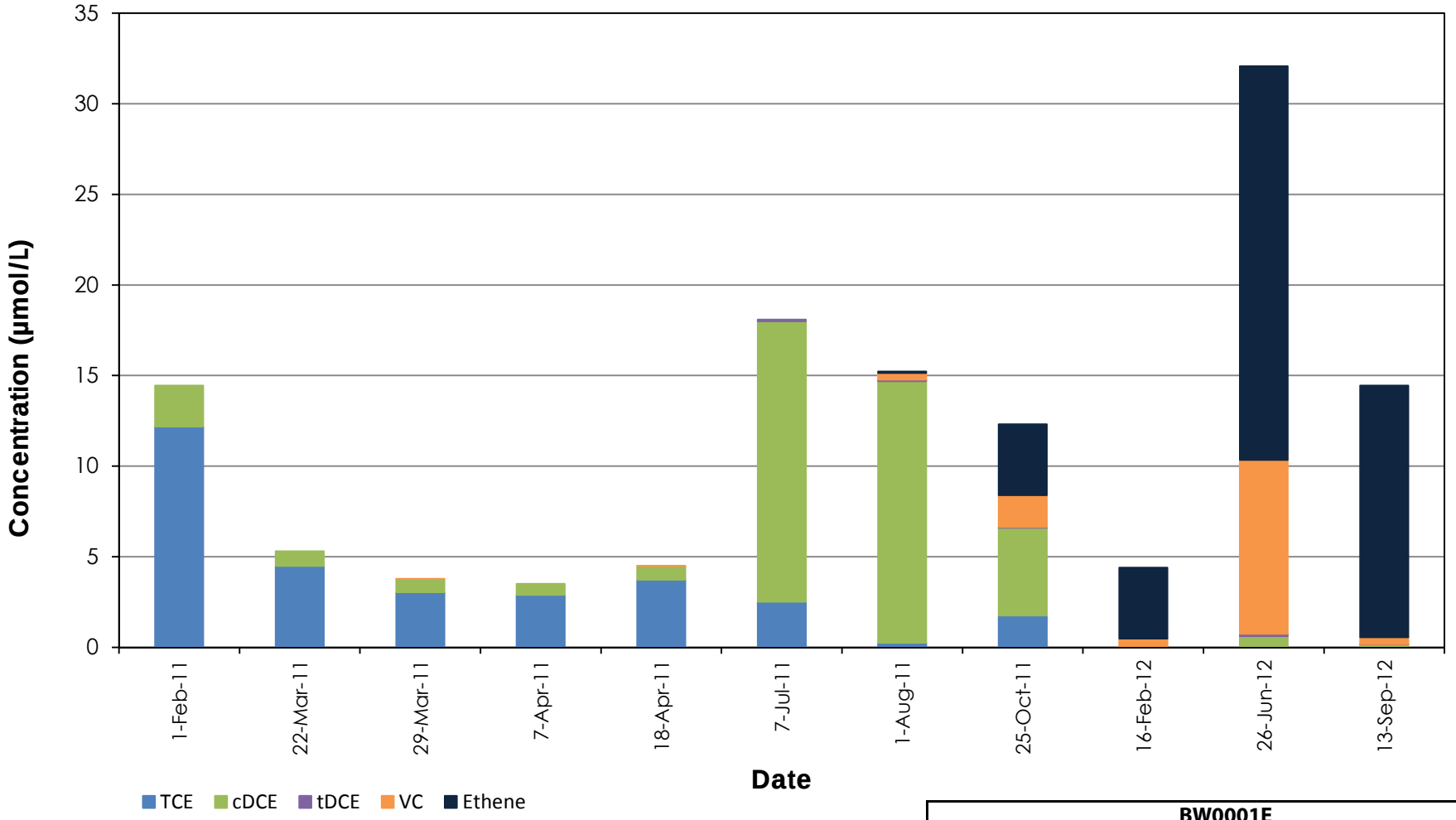
Appendix E

P:\PE\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\Stacked\[BW0001D_Stacked_201



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0001E
Volatile Organic Compound Distribution History
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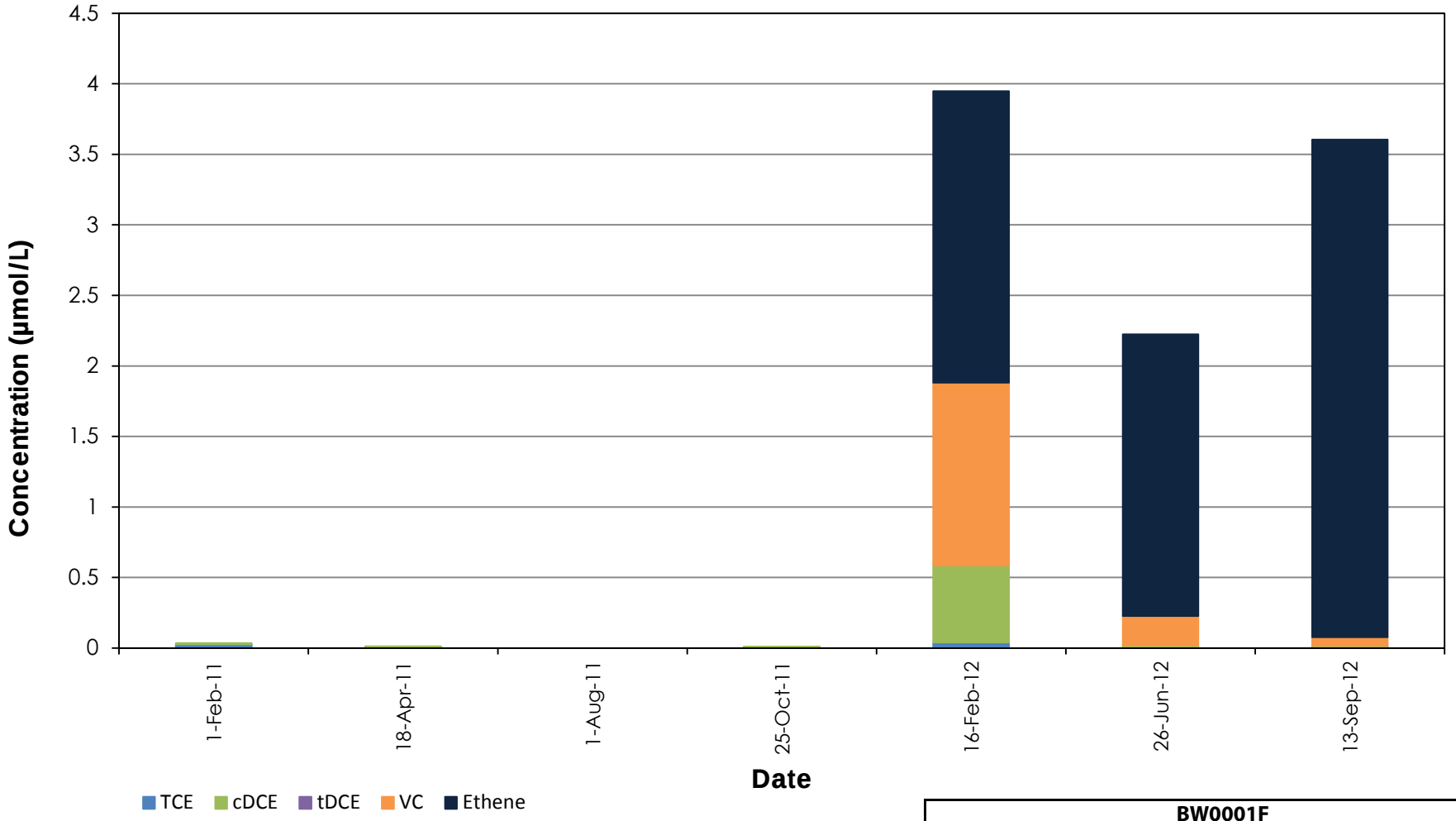
Appendix E

P:\PE\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\Stacked\(BW0001E_Stacked_201



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0001F
Volatile Organic Compound Distribution History
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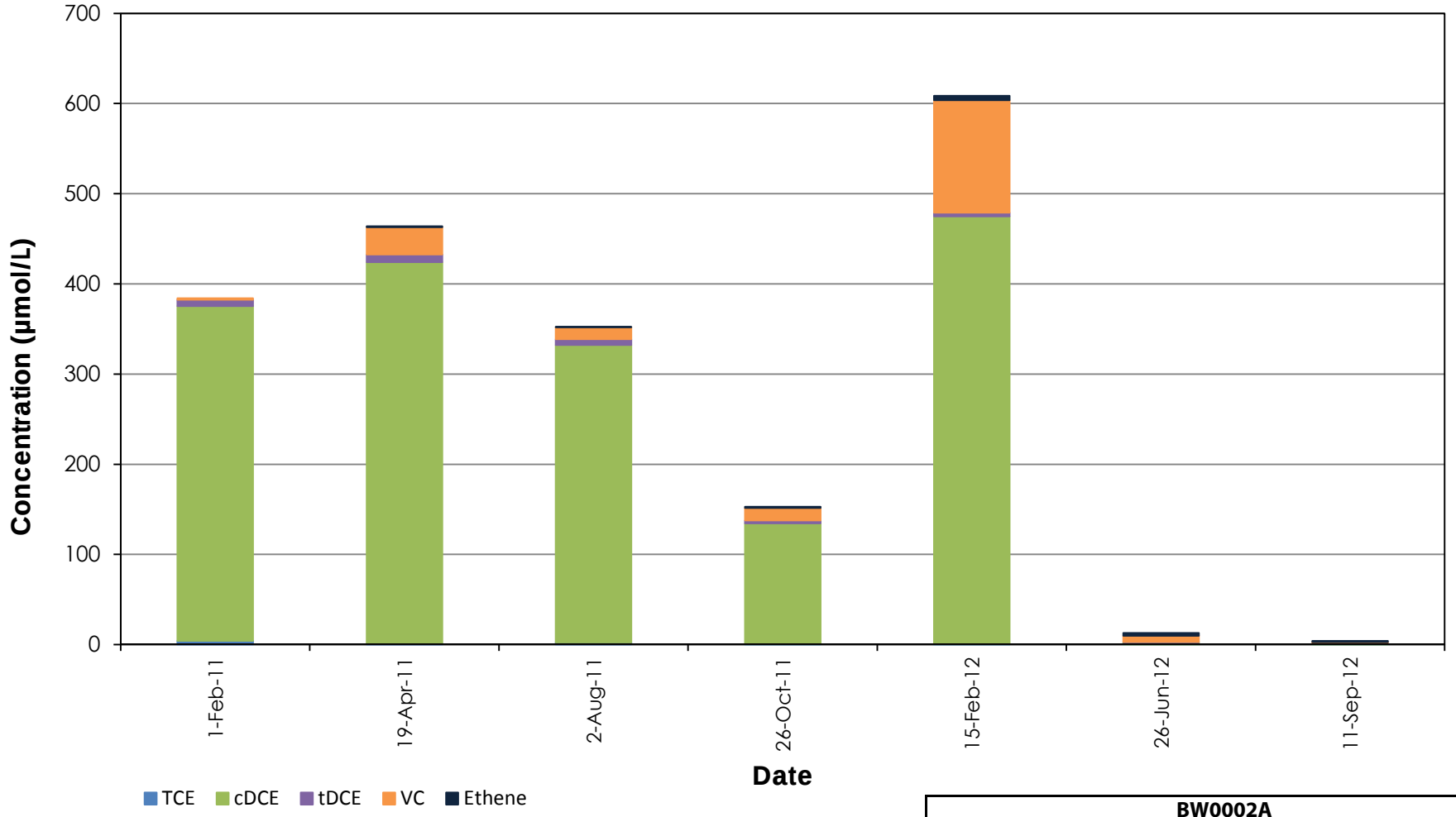
Appendix E

P:\PE\Projects\TR0272 - ESTCP_PED\12 Field Demo - LC34\DATA\001 Database & GIS\GuelphOutput\TimeTrendPlots_20130118\October 2013\Stacked\BW0001F_Stacked_201



Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0002A
Volatile Organic Compound Distribution History
Launch Complex 34, Cape Canaveral, FL

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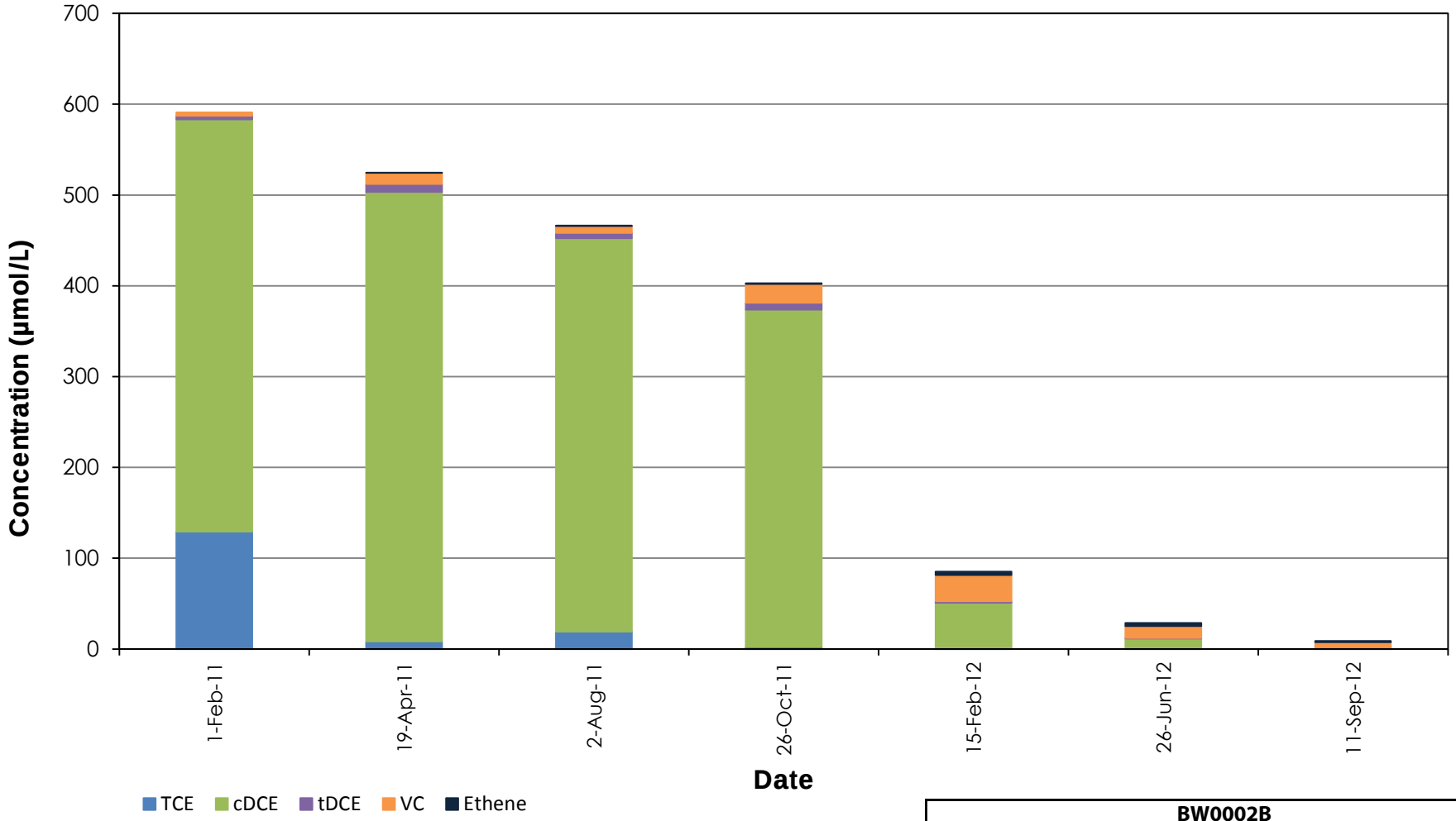

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0002B
Volatile Organic Compound Distribution History
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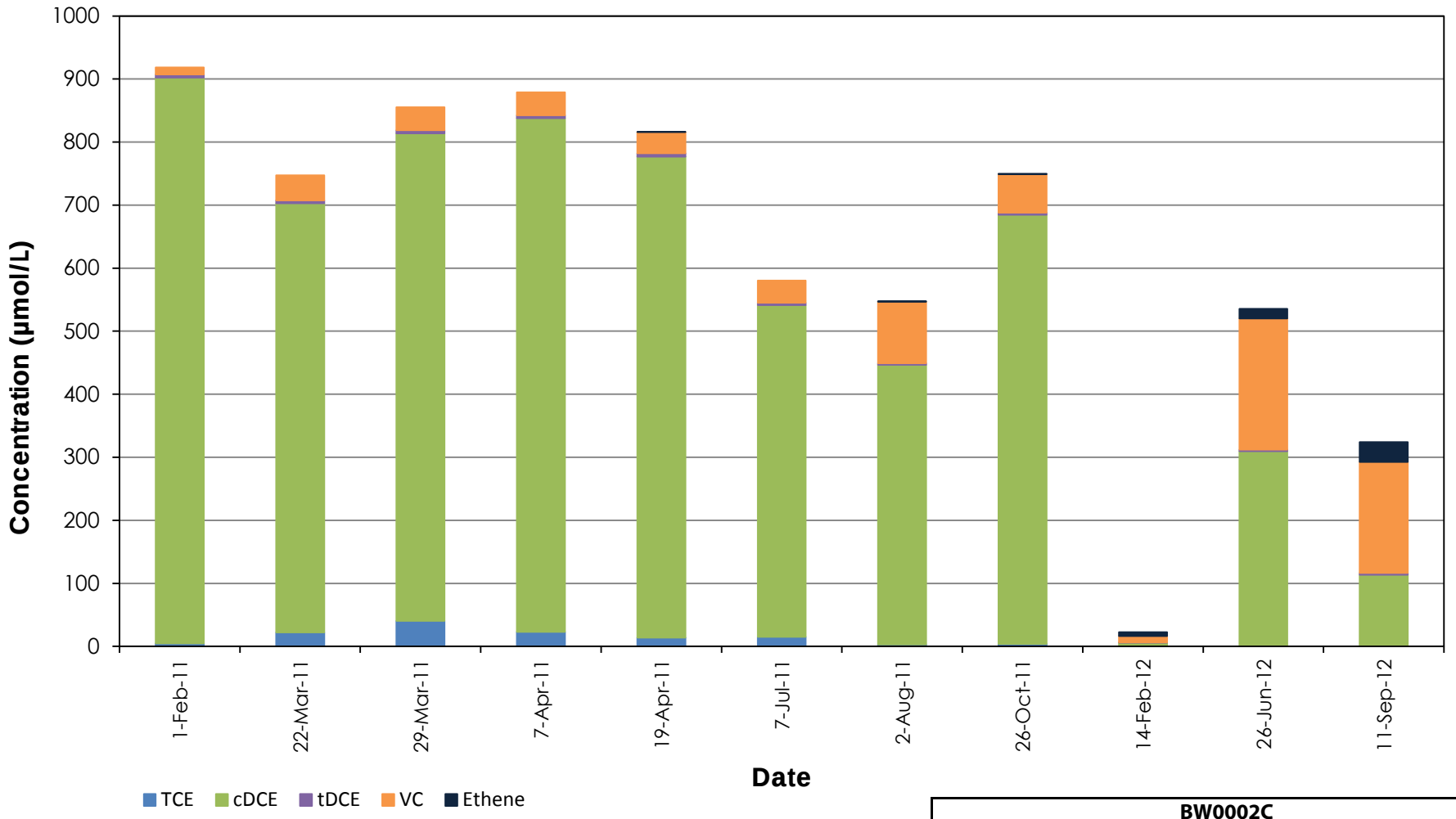

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0002C
Volatile Organic Compound Distribution History
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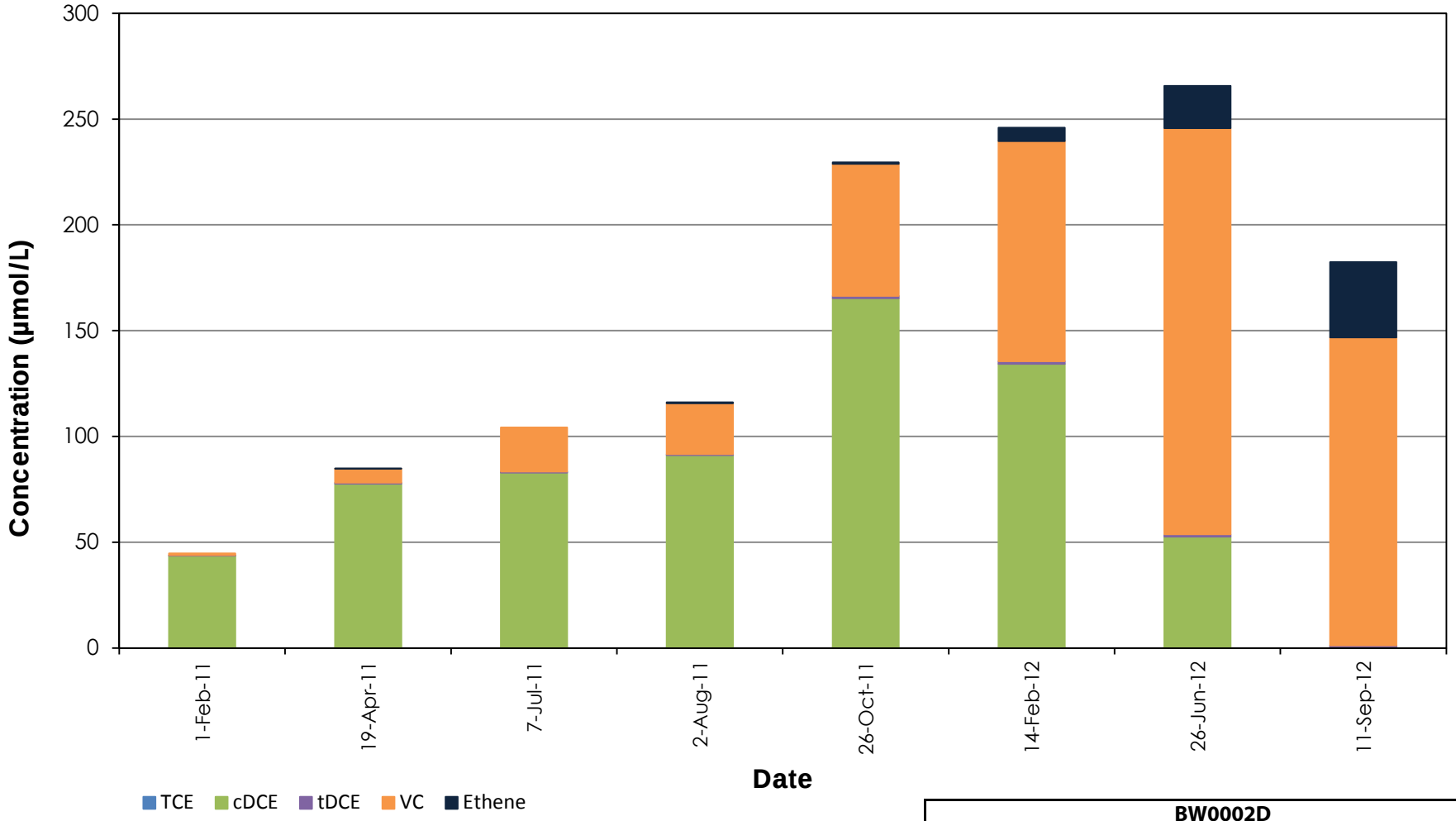

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0002D
Volatile Organic Compound Distribution History
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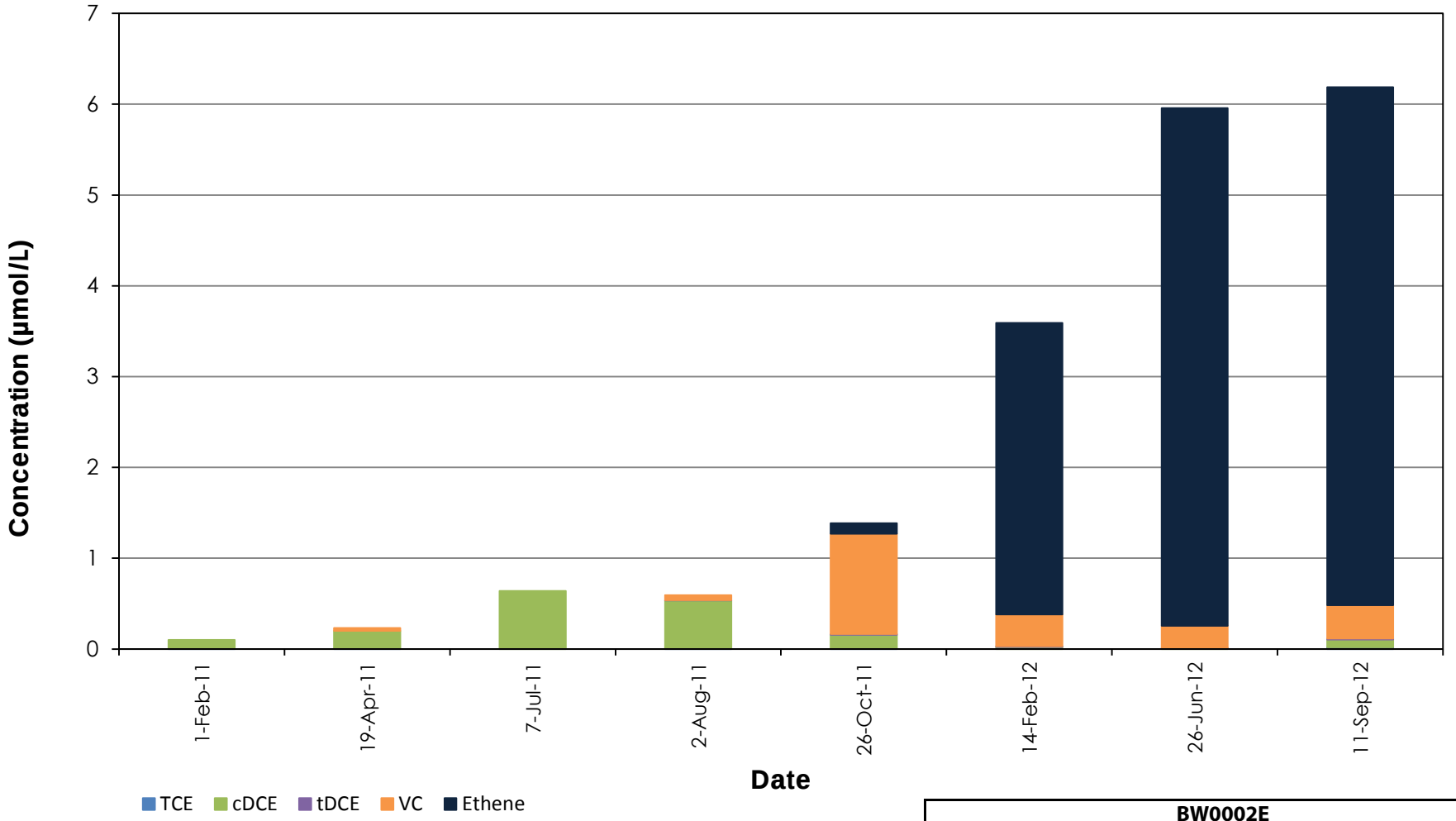

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0002E
Volatile Organic Compound Distribution History
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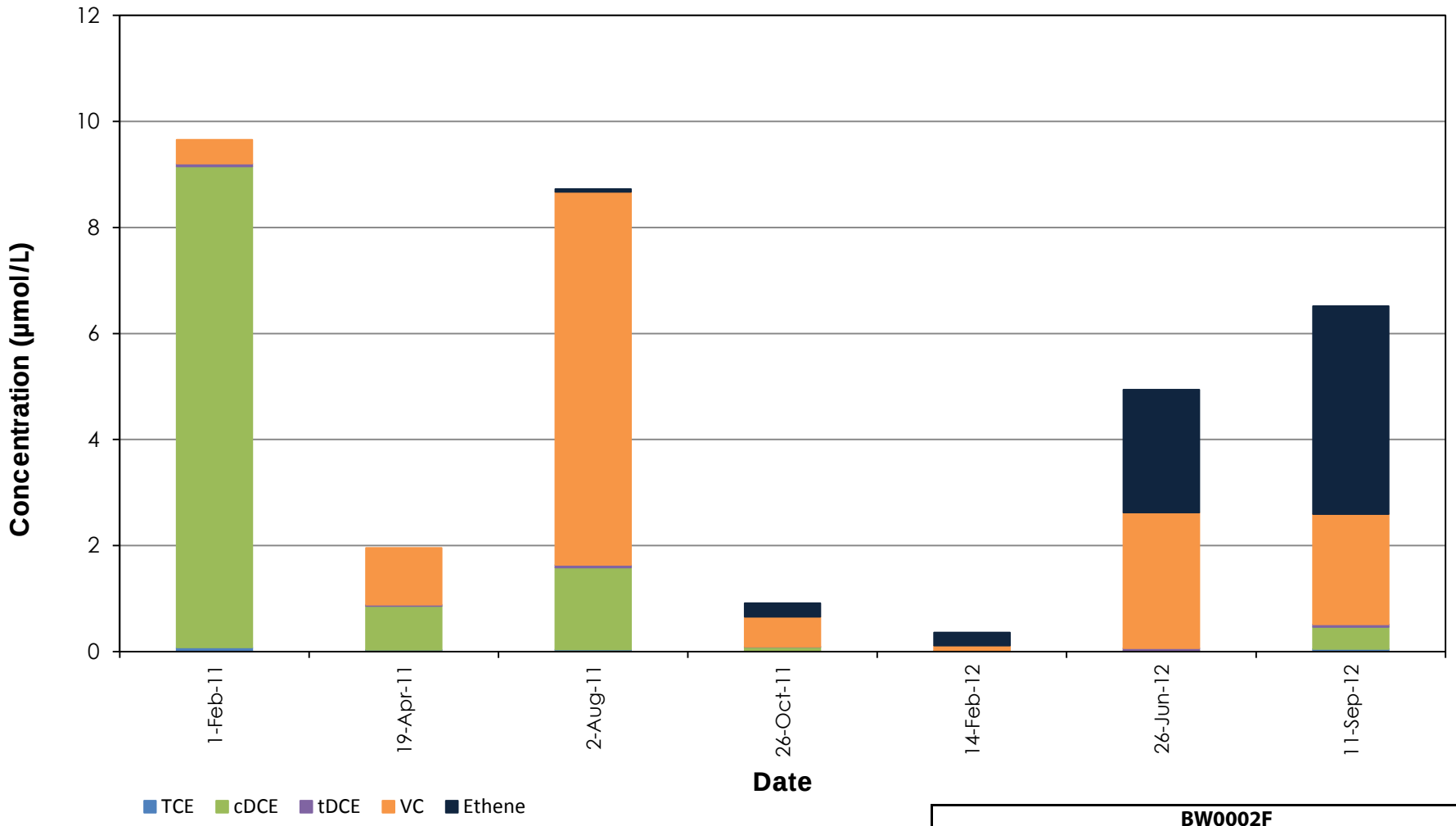

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0002F
Volatile Organic Compound Distribution History
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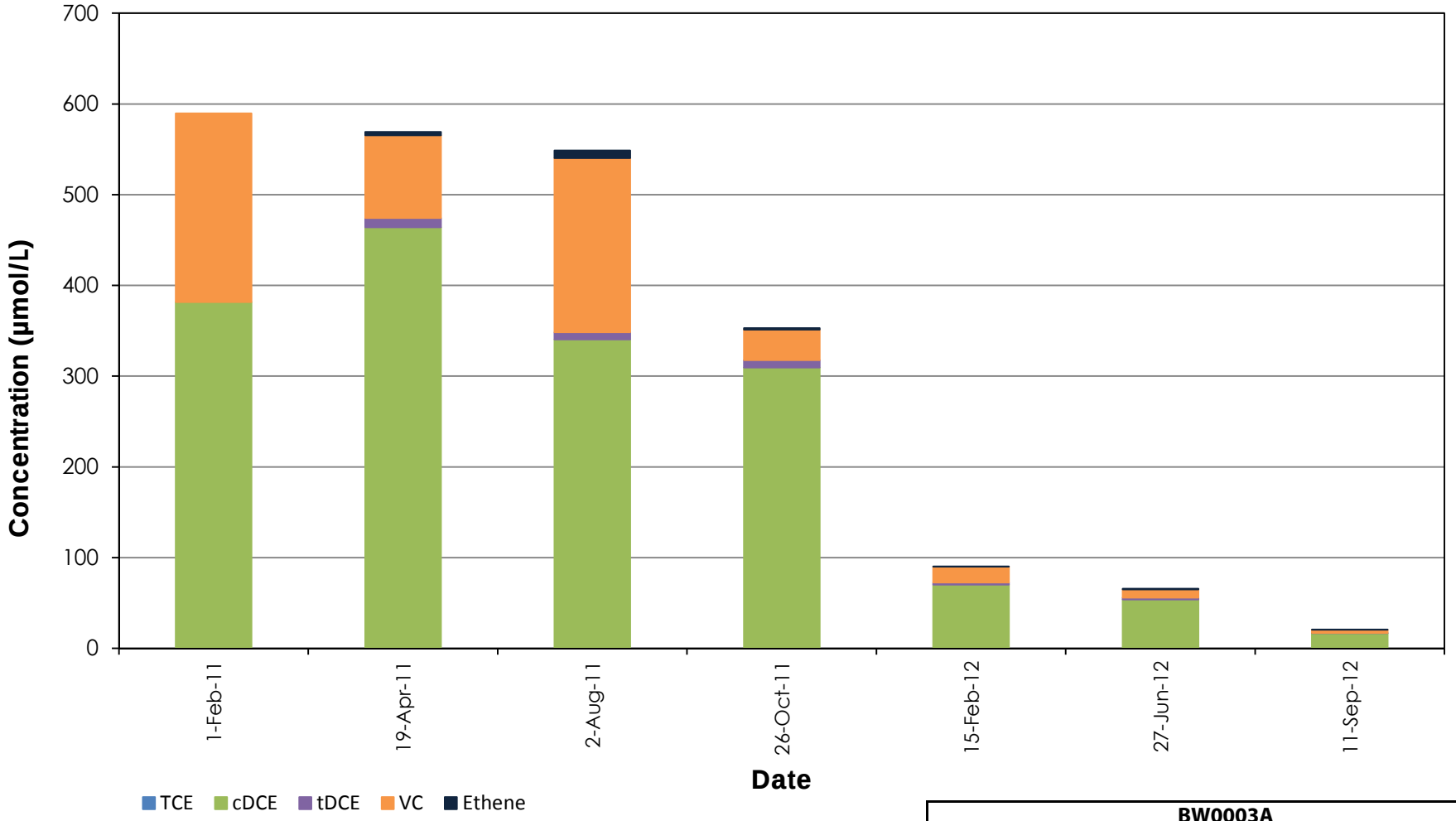

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0003A
Volatile Organic Compound Distribution History
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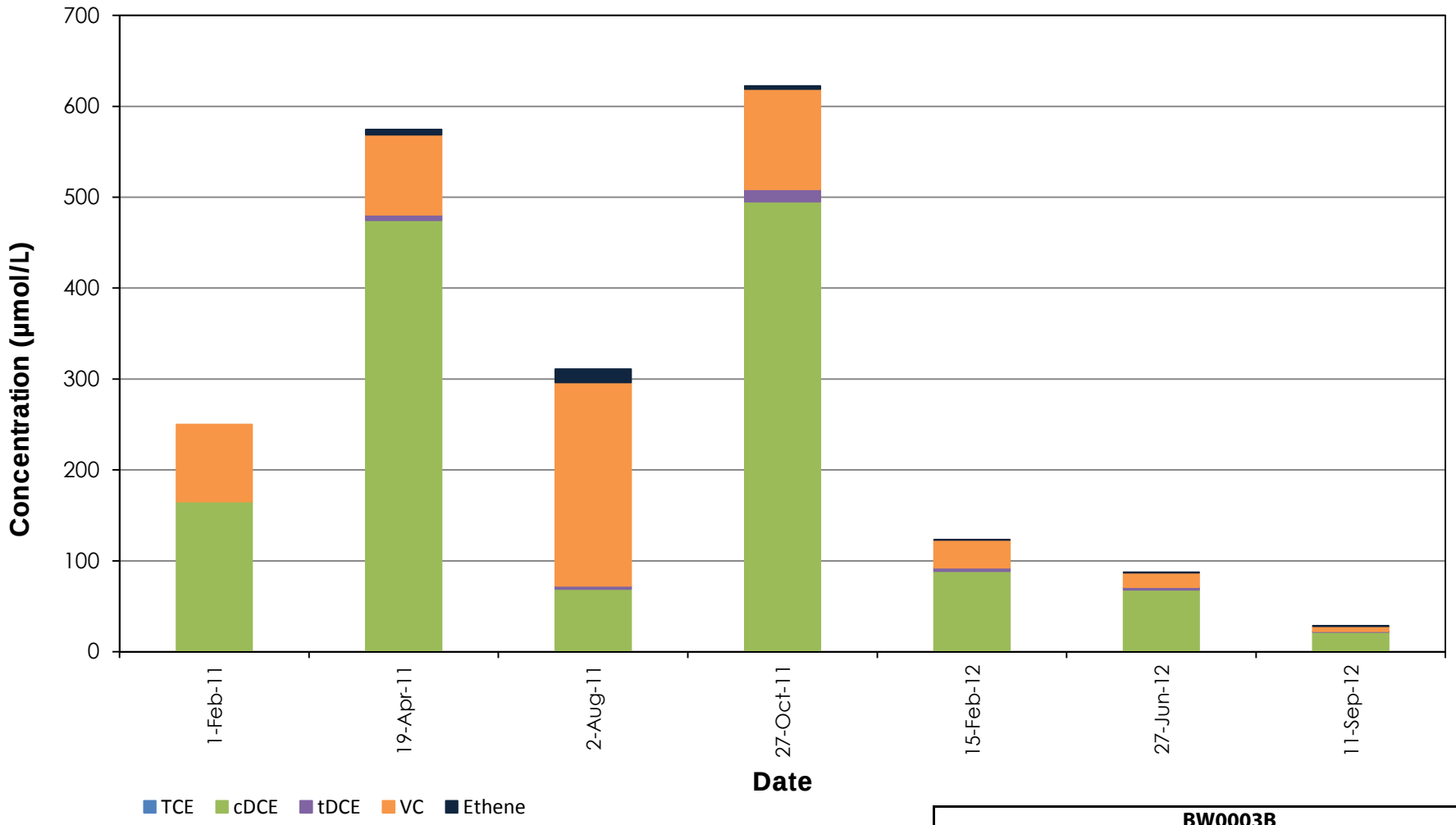

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0003B
Volatile Organic Compound Distribution History
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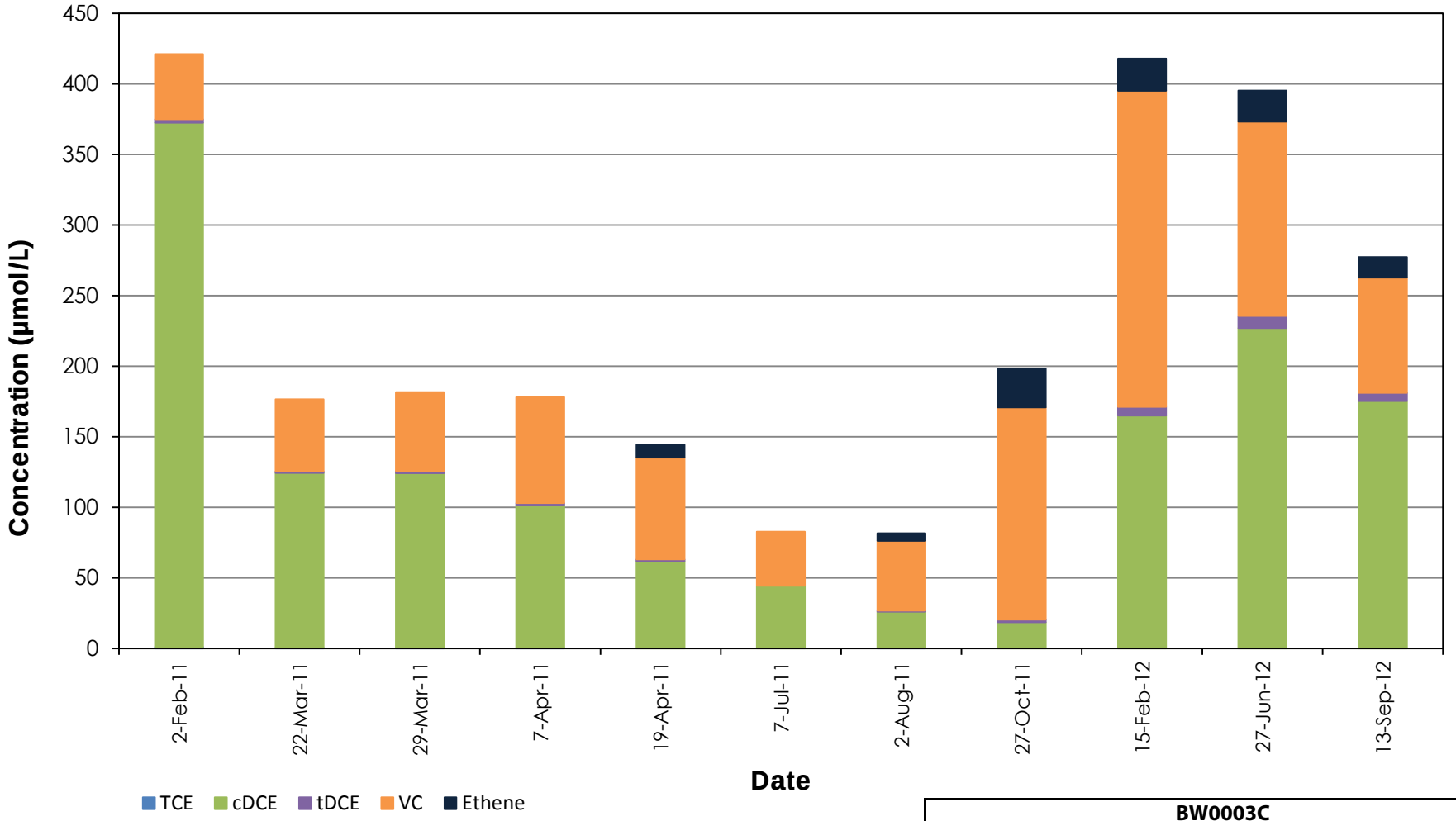

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0003C
Volatile Organic Compound Distribution History
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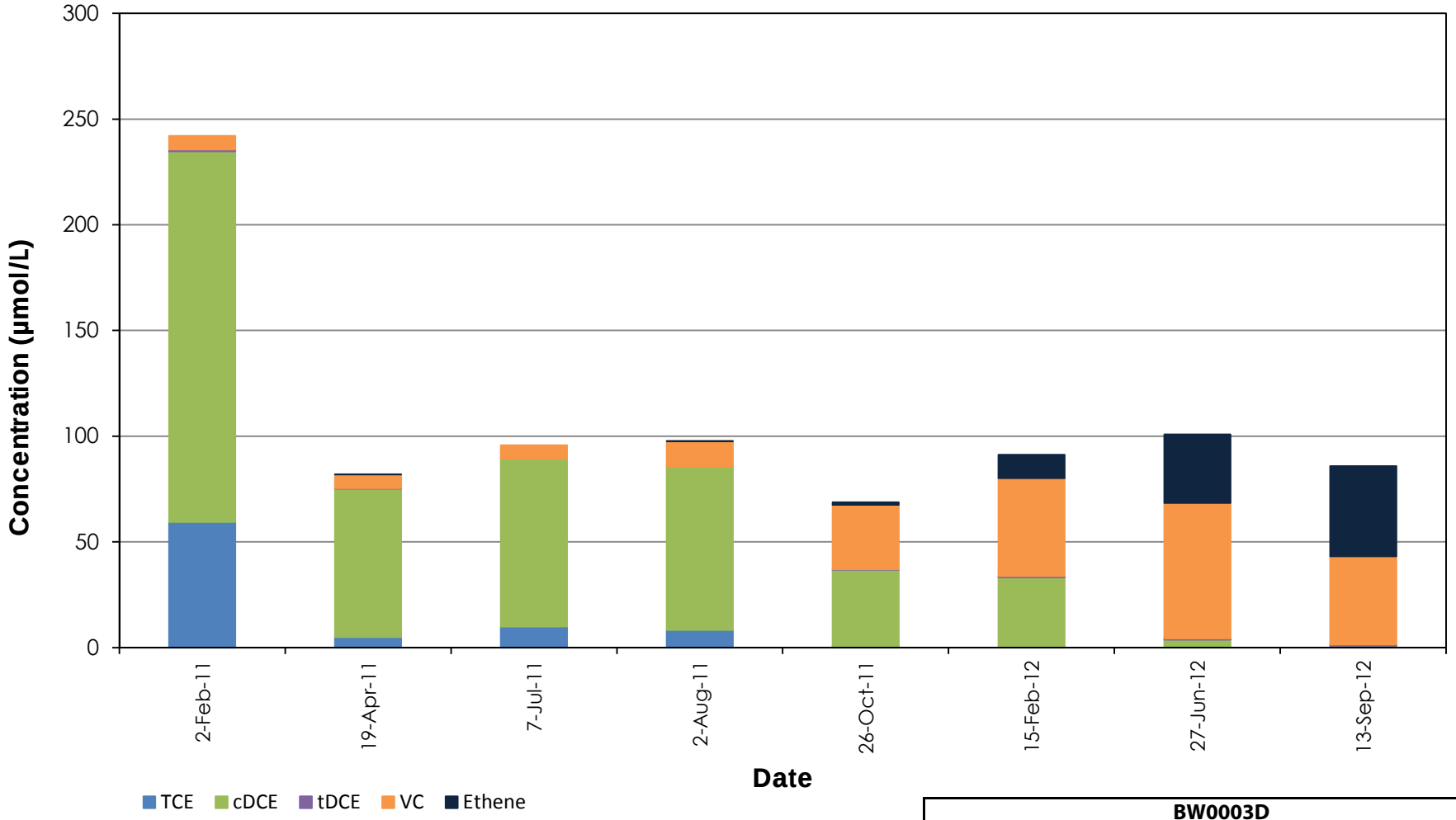

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0003D
Volatile Organic Compound Distribution History
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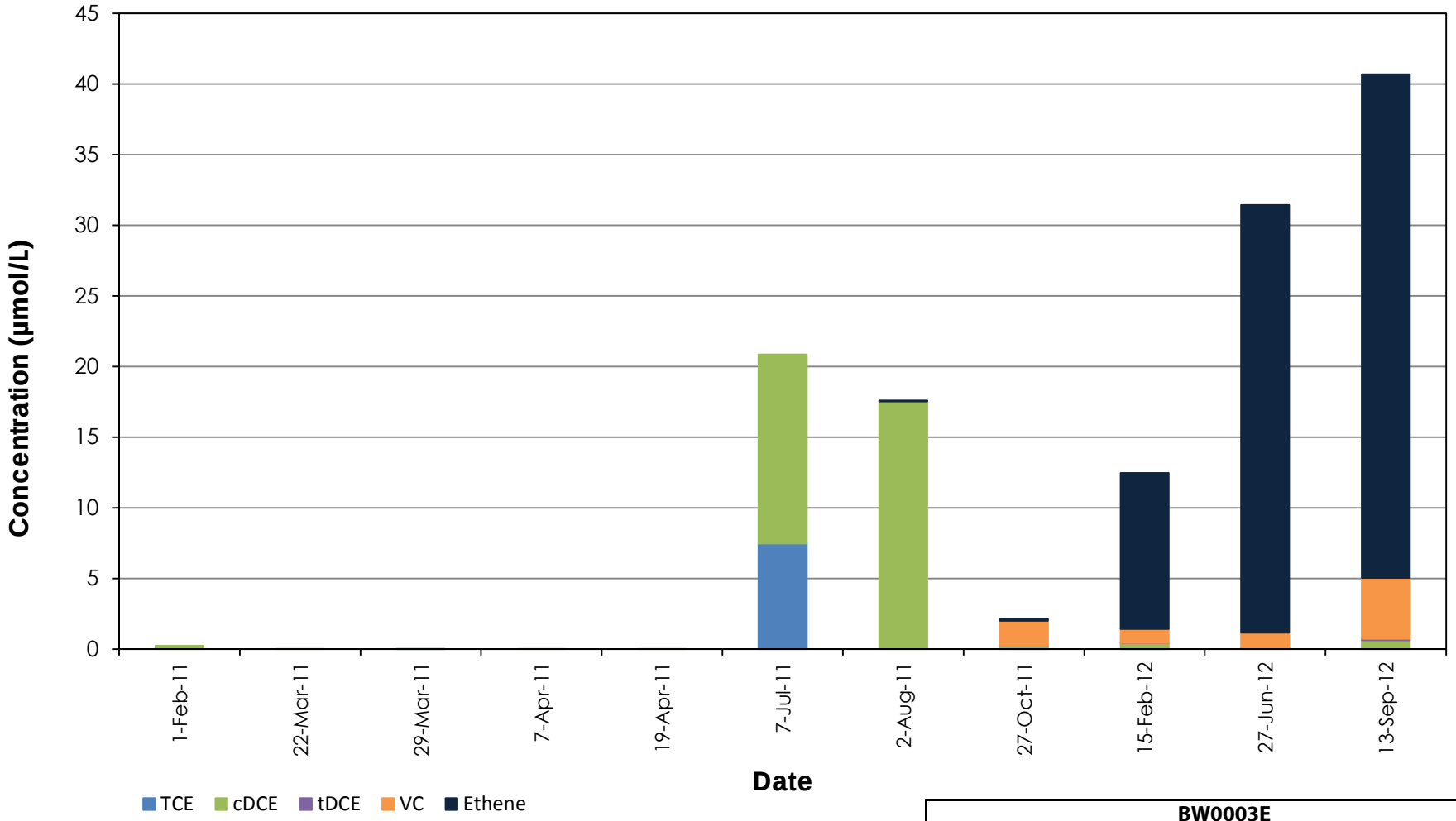

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0003E
Volatile Organic Compound Distribution History
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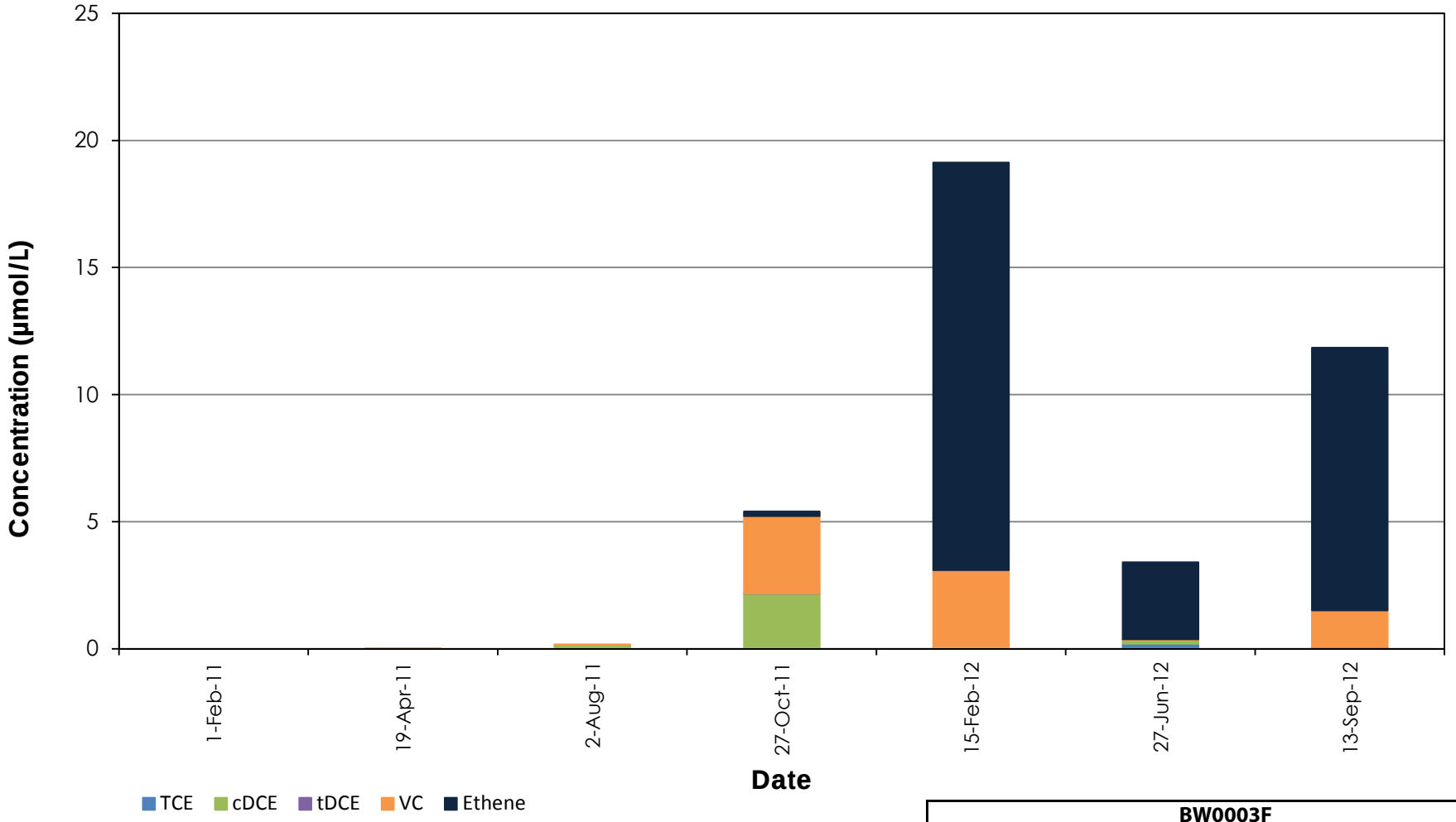

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

BW0003F
Volatile Organic Compound Distribution History
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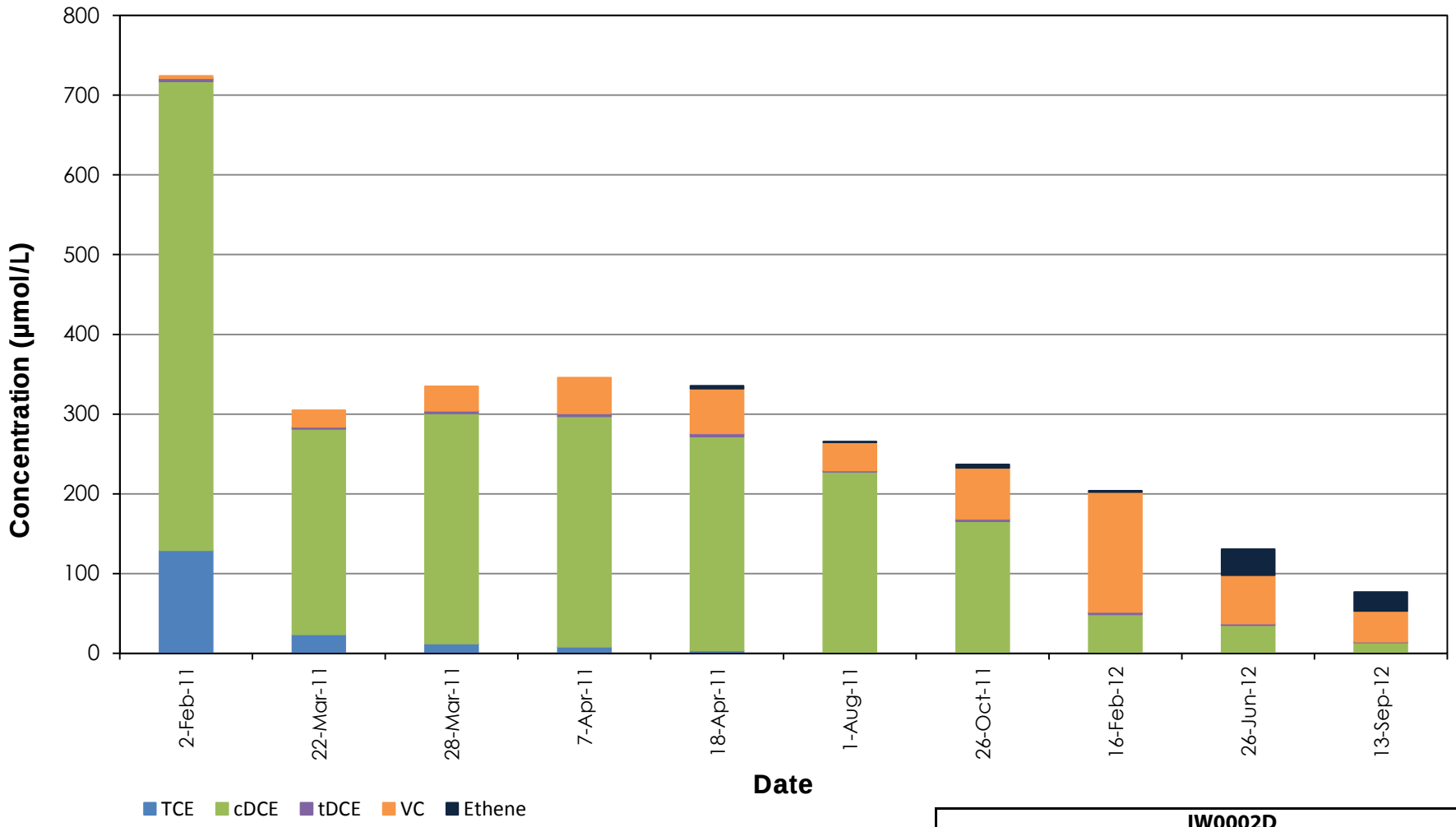

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

IW0002D
Volatile Organic Compound Distribution History
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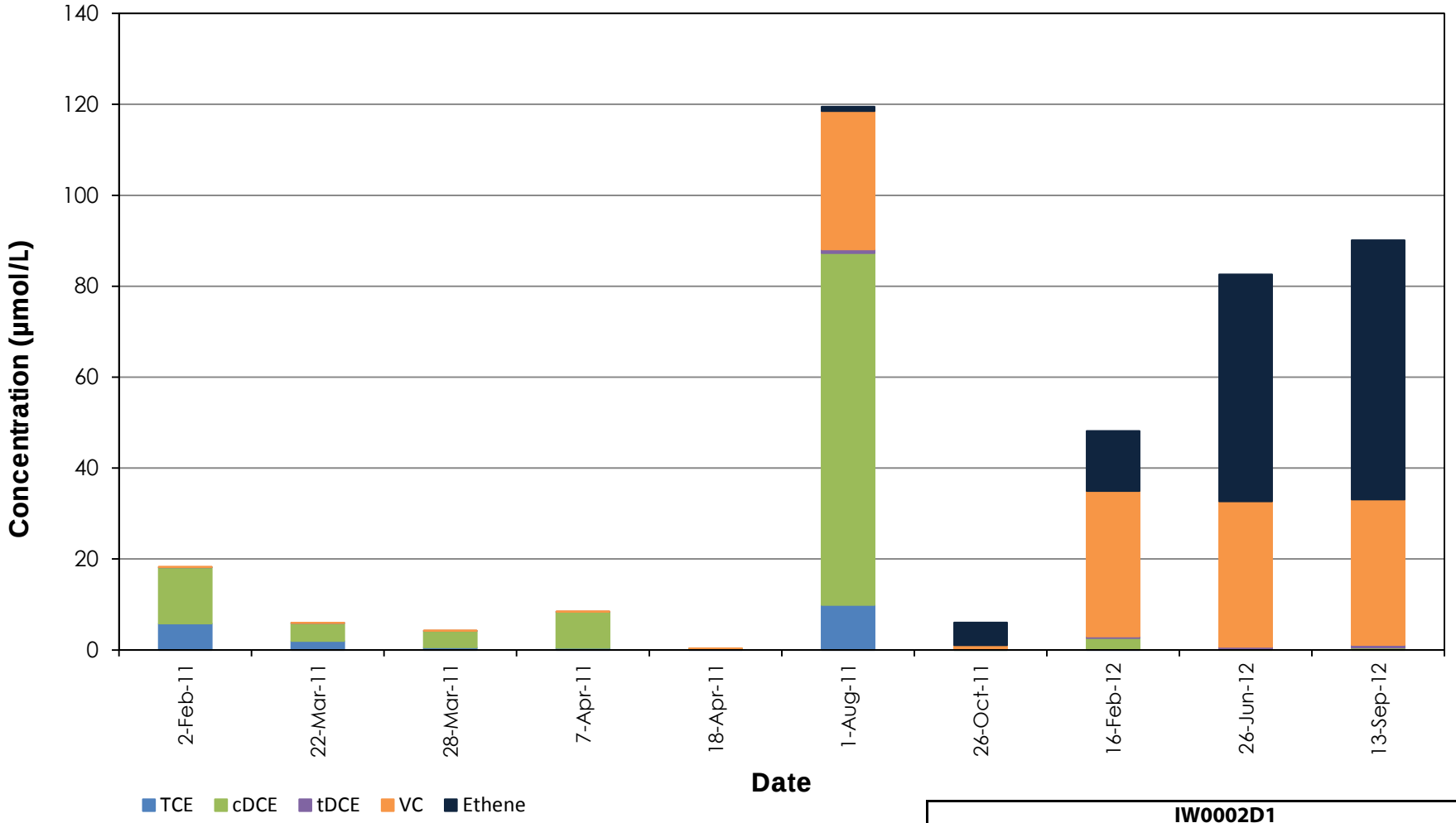

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

IW0002D1
Volatile Organic Compound Distribution History
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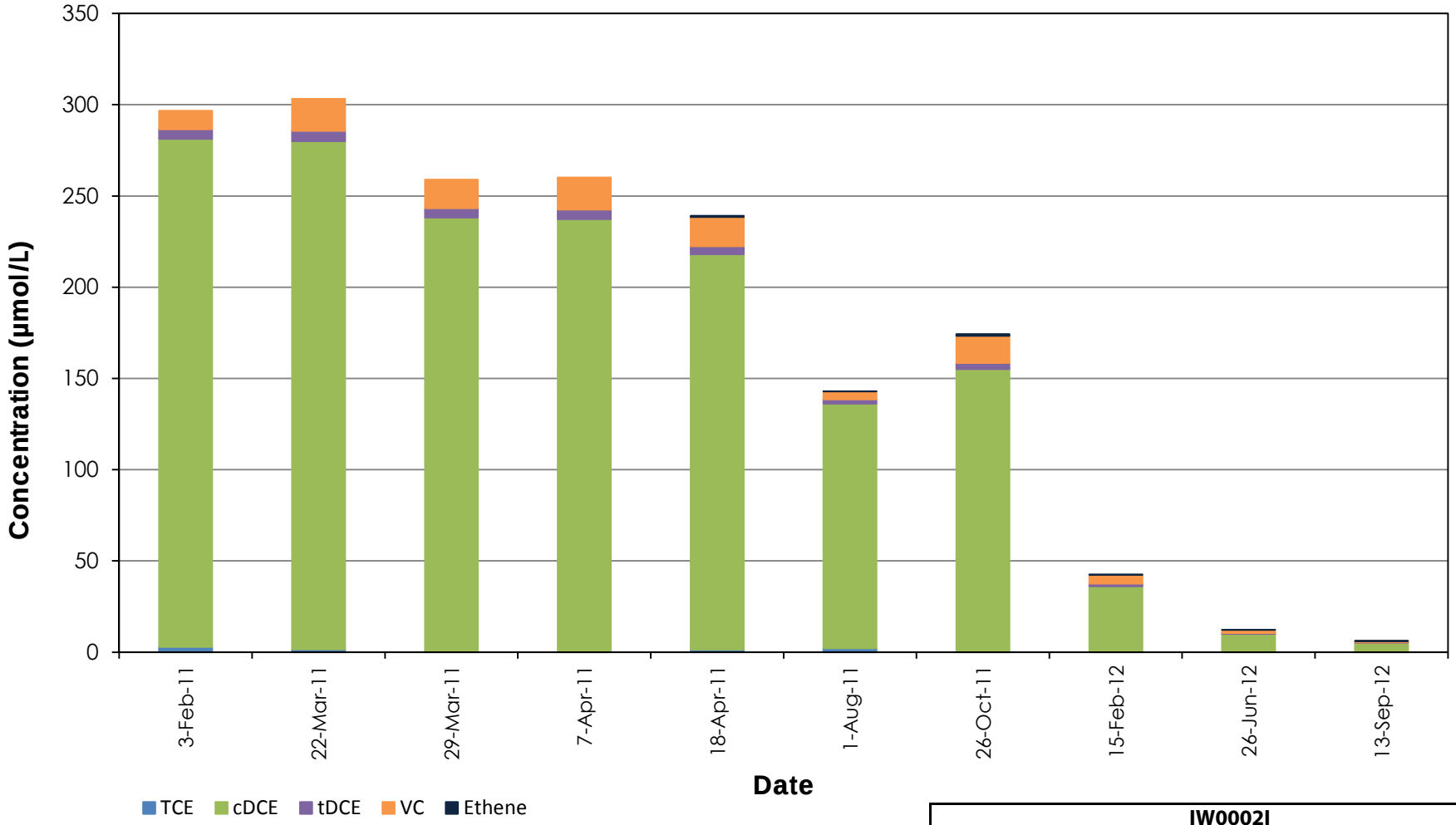

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

IW0002I
Volatile Organic Compound Distribution History
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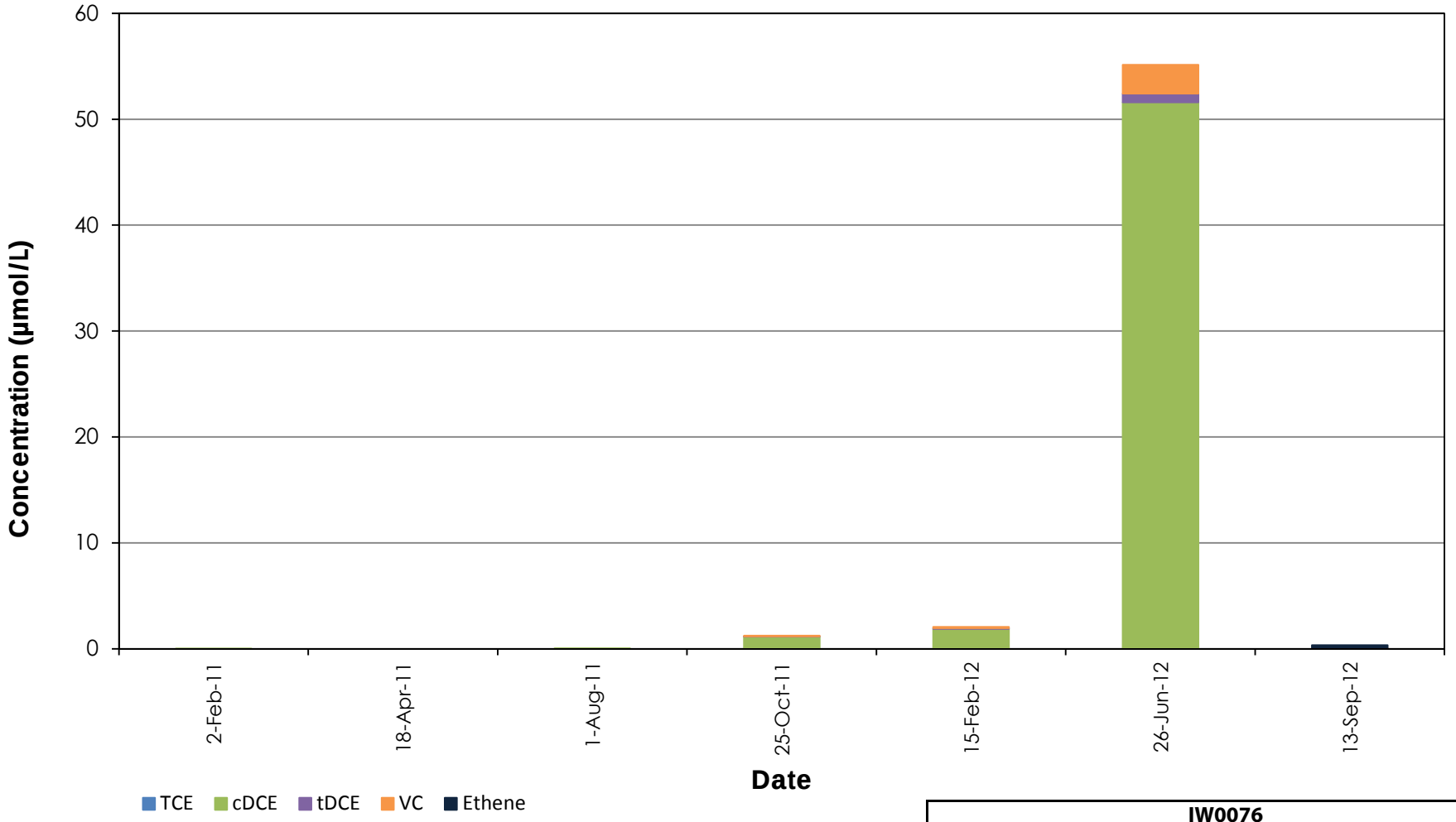

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride

IW0076
Volatile Organic Compound Distribution History
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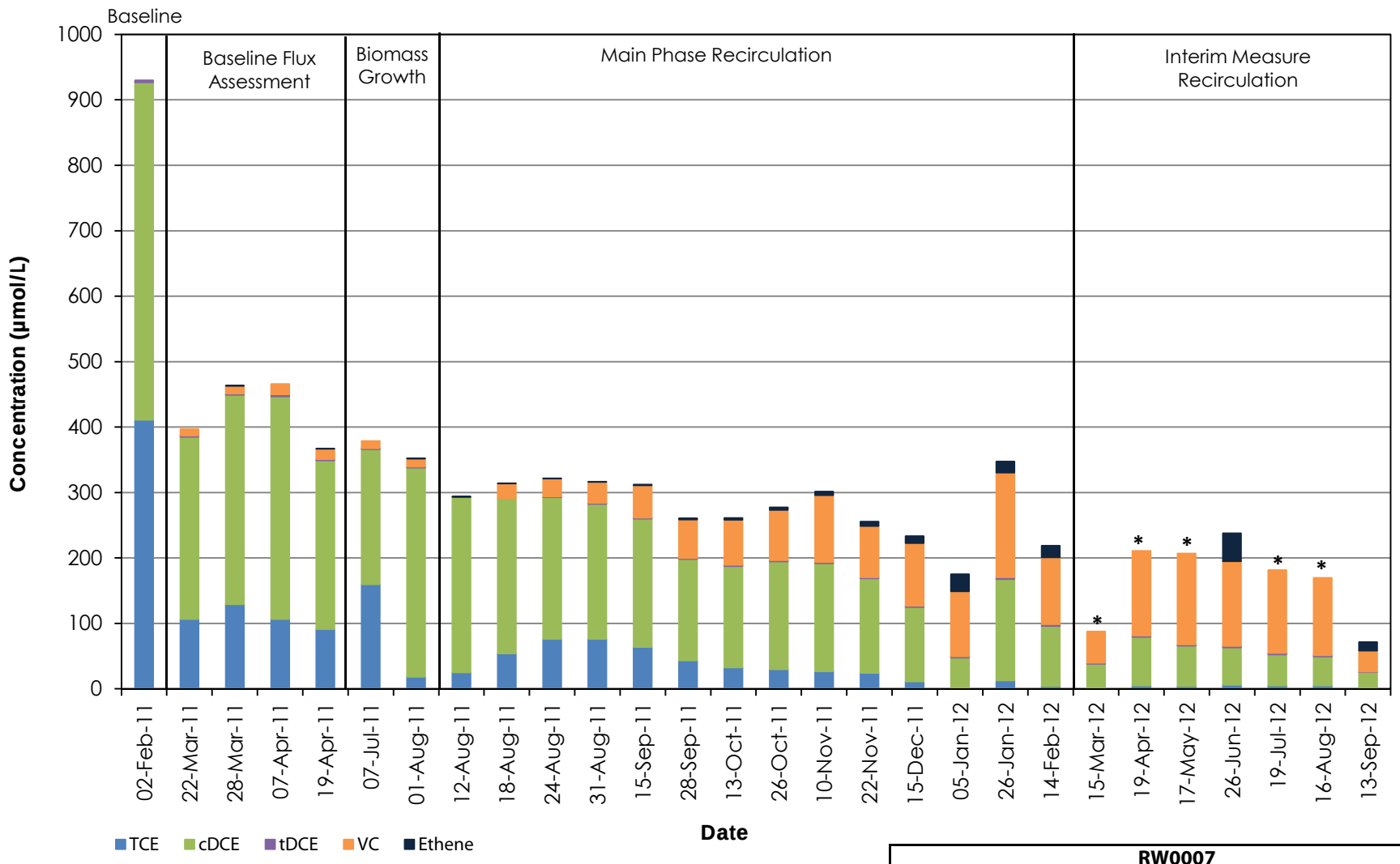

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride
* - no analysis for ethene

RW0007
Volatile Organic Compound Distribution History
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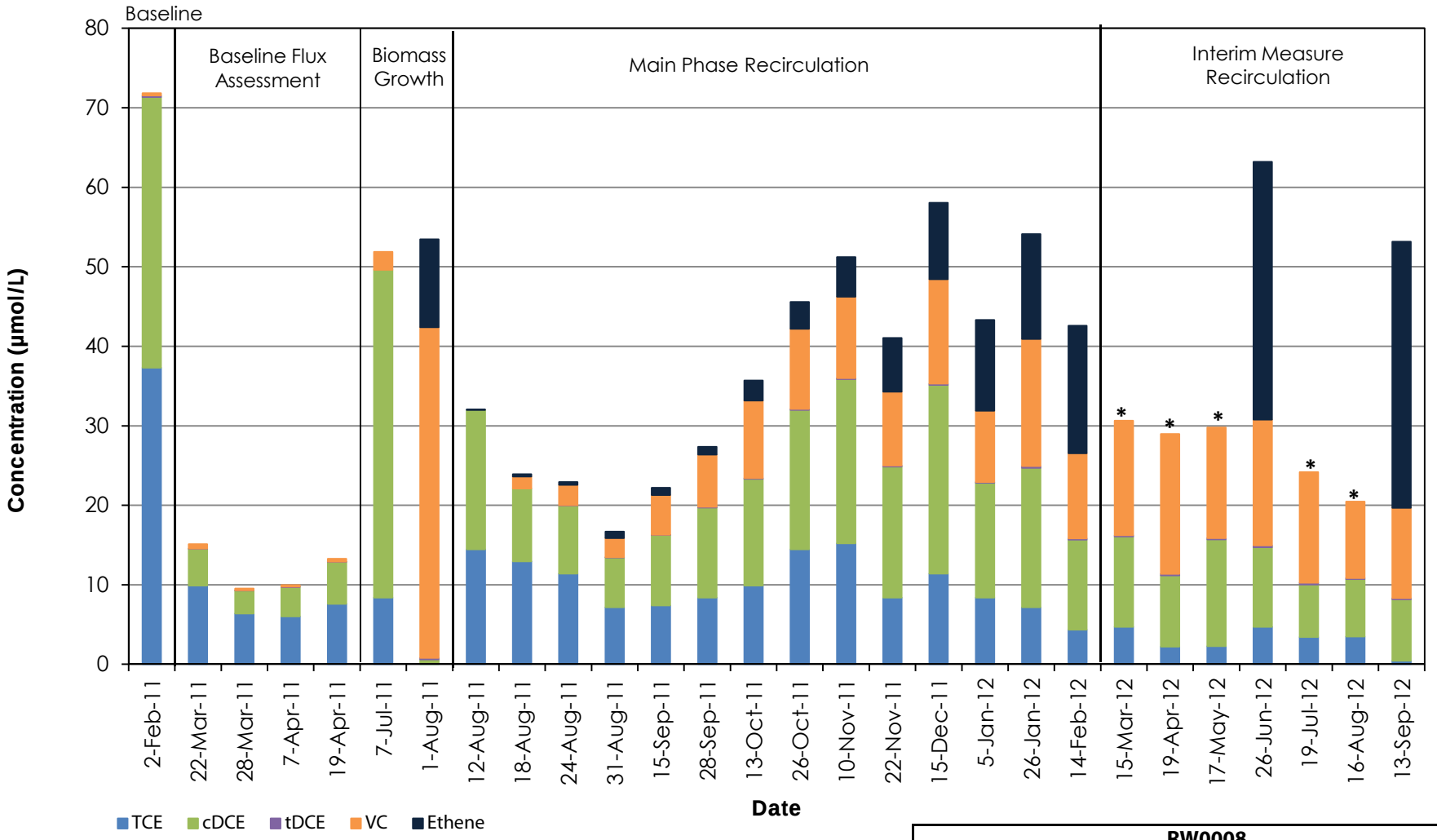

Notes:
Bars represent detected data only
µmol/ L - micromoles per liter
cDCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
tDCE - trans-1,2-Dichloroethene
VC - Vinyl chloride
* - no analysis for ethene

RW0008
Volatile Organic Compound Distribution History
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ATTACHMENT E-4

DATA ANALYSIS

Table E-4-1 Recovery of PED and Tracers in Confirmation Grab Samples

Table E-4-2 Comparison of PED and Tracer Concentrations in Well Samples – Post-Injection, 07 July 2011

Table E-4-3 Comparison of PED and Tracer Concentrations in Well Samples – Post-Biomass Growth Phase, 01 August 2011

Figure E-4-1 Normalized TOC and Tracer Recovery

Figure E-4-2 Tracer Recovery at Extraction Wells

Figure E-4-3 TOC Recovery at Extraction Wells

Table E-4-1. Recovery of PED and Tracers in Confirmation Grab Samples

Location	Sample Date	Sample Interval (ft BLS)	nBA (µg/L)	nBUT (µg/L)	Br (mg/L)	I (mg/L)	Br/I	$Br/Br^{(0)}$	$I/I^{(0)}$	Br'/I'	$nBA/nBA^{(0)}$	nBA'/Br'
LC34-DPT0328	06/30/2011	28 to 32	1,500	25,000 U	1 U	2 U	ND	ND	ND	NA	0.001	NA
	06/30/2011	37 to 41	19,000	25,000 U	2	2 U	ND	0.028	ND	NA	0.006	0.228
	06/30/2011	43 to 47	640	13,000 U	1.9	2 U	ND	0.026	ND	NA	0.000	0.008
	06/30/2011	49 to 53	26	NA	1.8	2 U	ND	0.025	ND	NA	0.000	0.000
	06/30/2011	55 to 59	440	NA	1.9	2 U	ND	0.026	ND	NA	0.000	0.006
LC34-DPT0329	06/30/2011	28 to 32	1,300,000	NA	NA	NA	NA	ND	ND	NA	0.433	NA
	06/30/2011	37 to 41	1,200,000	500,000 U	49.7	25	2.0	0.690	0.234	2.954	0.400	0.579
	06/30/2011	43 to 47	1,300,000	NA	45.8	2 U	ND	0.636	ND	NA	0.433	0.681
	06/30/2011	49 to 53	1,700,000	NA	NA	NA	ND	ND	ND	NA	0.567	NA
LC34-DPT0330	06/30/2011	8 to 12	1,600	NA	NA	NA	NA	ND	ND	NA	0.001	NA
	06/30/2011	28 to 32	19,000	NA	NA	NA	NA	ND	ND	NA	0.006	NA
	06/30/2011	37 to 41	20,000	25,000 U	2.5	2 U	ND	0.035	ND	NA	0.007	0.192
	06/30/2011	43 to 47	860,000	75,000	27.9	2 U	ND	0.388	ND	NA	0.326	0.841
	06/30/2011	49 to 53	97,000	19,000	4.2	2 U	ND	0.058	ND	NA	0.042	0.724
LC34-DPT0331	06/30/2011	14 to 18	1,700	NA	1 U	NA	ND	ND	ND	NA	0.001	NA
	06/30/2011	28 to 32	24,000	NA	1.8	2.8	0.6	0.025	0.026	0.955	0.008	0.320
	06/30/2011	37 to 41	490,000	27,000 U	6.2	3.6	1.7	0.086	0.034	2.559	0.163	1.897
	06/30/2011	43 to 47	55,000	50,000 U	1.7	2 U	ND	0.024	ND	NA	0.018	0.776
Average								**0.171**	**0.098**		**0.134**	**0.521**

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. mg/L indicates milligrams per liter.
4. ND indicates non-detect.
5. U indicates result not detected above method detection limit (MDL).
6. NA indicates not analyzed or not applicable.
7. nBA - n-Butyl Acetate
8. nBUT - n-Butanol
9. Br - Bromide
10. I - Iodide
11. $Br^{(0)}$ - Bromide concentration in injectate
12. $I^{(0)}$ - Iodide concentration in injectate
13. ' indicates normalized concentration; i.e., $Br' = Br/Br^{(0)}$

Table E-4-2. Comparison of PED and Tracer Concentrations in Well Samples - Post-Injection, 07 July 2011

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Br (mg/L)	I (mg/L)	nBA (µg/L)	nBUT (µg/L)	$Br/Br^{(0)}$	$I/I^{(0)}$	Br'/I'	nBUT/nBA (mol basis)	nBA (µmol/L)	nBUT (µmol/L)	nBA+nBUT (µmol/L)	nBUT/ (nBUT+nBA)	Total nBA Equivalents (µg/L)	Total $nBA/nBA^{(0)}$	Total nBA'/Br'
LC34-BW0001C	07/07/2011	37 to 40	NA	15	22	420,000	320,000	0.206	0.206	1.000	1.19	3615.7	4317.3	7933.0	0.54	921,500	0.307	1.49
LC34-BW0001D	07/07/2011	44 to 47	NA	3.6	0.20 U	60,000	23,000	0.050	ND	NA	0.60	516.5	310.3	826.8	0.38	96,045	0.032	0.64
LC34-BW0001E	07/07/2011	51 to 54	NA	2.2	0.20 U	3,500	1,500	0.031	ND	NA	0.67	30.1	20.2	50.4	0.40	5,851	0.002	0.06
LC34-BW0002C	07/07/2011	37 to 40	NA	24	14	490,000	120,000	0.335	0.135	2.487	0.38	4218.3	1619.0	5837.3	0.28	678,063	0.226	0.68
LC34-BW0002D	07/07/2011	44 to 47	NA	2.2	0.20 U	49	ND	0.031	ND	NA	ND	0.4	ND	0.4	NA	49	0.000	--
LC34-BW0002E	07/07/2011	51 to 54	NA	2.5	0.20 U	3,300	2,000	0.035	ND	NA	0.95	28.4	27.0	55.4	0.49	6,434	0.002	0.06
LC34-BW0003C	07/07/2011	37 to 40	NA	36	58	640,000	360,000	0.501	0.542	0.925	0.88	5509.6	4857.0	10366.6	0.47	1,204,188	0.401	0.80
LC34-BW0003D	07/07/2011	44 to 47	NA	24	0.20 U	830,000	350,000	0.326	ND	NA	0.66	7145.3	4722.1	11867.4	0.40	1,378,516	0.460	1.41
LC34-BW0003E	07/07/2011	51 to 54	NA	45	0.20 U	1,500,000	520,000	0.618	ND	NA	0.54	12913.2	7015.7	19928.9	0.35	2,314,938	0.772	1.25
LC34-RW0007	07/07/2011	35 to 42	NA	17	2.1	410,000	140,000	0.242	0.020	12.313	0.54	3529.6	1888.8	5418.4	0.35	629,406	0.210	0.87
LC34-RW0008	07/07/2011	47 to 57	NA	4.8	0.20 U	81,000	8,700	0.067	ND	NA	0.17	697.3	117.4	814.7	0.14	94,635	0.032	0.47
Average						**403,441**	**184,520**	**0.22**	**0.23**		**0.66**			**5,736**	**0.38**	**666,330**	**0.22**	**0.77**

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. mg/L indicates milligrams per liter.
4. mol indicates moles.
5. µmol/L indicate micromoles per liter.
6. NA indicates not analyzed or not applicable.
7. ND indicates non-detect.
8. U indicates result not detected above the method detection limit (MDL).
9. nBA - n-Butyl Acetate
10. nBUT - n-Butanol
11. Br - Bromide
12. I - Iodide
13. TOC - total organic carbon
14. $Br^{(0)}$ - Bromide concentration in injectate
15. $I^{(0)}$ - Iodide concentration in injectate
16. $TOC^{(0)}$ - TOC concentration in injectate
17. ' indicates normalized concentration; i.e., $Br' = Br/Br^{(0)}$

Table E-4-3. Comparison of PED and Tracer Concentrations in Well Samples - Post-Biomass Growth Phase, 01 August 2011

Location	Sample Date	Screen Interval (ft BLS)	TOC (mg/L)	Br (mg/L)	I (mg/L)	nBA (µg/L)	nBUT (µg/L)	$Br/Br^{(0)}$	$I/I^{(0)}$	Br'/I'	nBUT/nBA (mol basis)	nBA (µmol/L)	nBUT (µmol/L)	nBA+nBUT (µmol/L)	nBUT/ (nBUT+nBA)	Equiv nBA (µg/L)	Total nBA/ $nBA^{(0)}$	Total nBA'/Br'	$TOC/TOC^{(0)}$	TOC'/Br'
LC34-BW0001A	08/01/2011	23 to 26	4.2	0.60 U	0.20 U	340	NA	ND	ND	NA	NA	2.9	NA	2.9	NA	340	0.000	NA	0.002	NA
LC34-BW0001B	08/01/2011	30 to 33	8.0	0.60 U	0.20 U	1,000	NA	ND	ND	NA	NA	8.6	NA	8.6	NA	1,000	0.000	NA	0.004	NA
LC34-BW0001C	08/01/2011	37 to 40	301	23	18	95,000	280,000	0.322	0.167	1.926	4.6	817.8	3,777.7	4,595.5	0.82	533,813	0.178	0.55	0.162	0.502
LC34-BW0001D	08/01/2011	44 to 47	37	2.9	0.20 U	71,000	15,000	0.040	ND	NA	0.3	611.2	202.4	813.6	0.25	94,508	0.032	0.78	0.020	0.497
LC34-BW0001E	08/01/2011	51 to 54	8.3	1.4	0.20 U	4.6	730	0.019	ND	NA	248.7	0.0	9.8	9.9	1.00	1,149	0.000	NA	0.004	NA
LC34-BW0001F	08/01/2011	58 to 61	606	27	0.20 U	900,000	620,000	0.374	ND	NA	1.1	7,747.9	8,364.8	16,112.7	0.52	1,871,657	0.624	1.67	0.326	0.872
LC34-BW0002A	08/02/2011	23 to 26	3.7	0.60 U	0.20 U	150	11,000	ND	ND	NA	114.9	1.3	148.4	149.7	0.99	17,389	0.006	NA	0.002	NA
LC34-BW0002B	08/02/2011	30 to 33	13	0.60 U	0.20 U	130	NA	ND	ND	NA	NA	1.1	NA	NA	NA	NA	NA	NA	0.007	NA
LC34-BW0002C	08/02/2011	37 to 40	354	7.6	13	42,000	210,000	0.106	0.121	0.876	7.8	361.6	2,833.2	3,194.8	0.89	371,110	0.124	1.17	0.190	1.803
LC34-BW0002D	08/02/2011	44 to 47	4.1	1.1	0.20 U	86	530 U	0.015	ND	NA	NA	0.7	ND	0.7	NA	86	0.000	NA	0.002	NA
LC34-BW0002E	08/02/2011	51 to 54	4.4	1.4	0.20 U	43	150	0.019	ND	NA	5.5	0.4	2.0	2.4	0.85	278	0.000	NA	0.002	NA
LC34-BW0002F	08/02/2011	58 to 61	7.1	2.3	0.20 U	0.41	NA	0.032	ND	NA	NA	0.0	NA	0.0	NA	0	0.000	0.00	0.004	0.119
LC34-BW0003A	08/02/2011	23 to 26	7.2	0.60 U	0.20 U	0.000001	NA	ND	ND	NA	NA	0.0	NA	0.0	NA	0	0.000	NA	0.004	NA
LC34-BW0003B	08/02/2011	30 to 33	89	7.7	9.6	88	NA	0.107	0.090	1.192	NA	0.8	NA	0.8	NA	88	0.000	0.00	0.048	0.447
LC34-BW0003C	08/02/2011	37 to 40	671	52	64	290	190,000	0.722	0.599	1.206	1,026.8	2.5	2,563.4	2,565.9	1.00	298,056	0.099	0.14	0.361	0.500
LC34-BW0003D	08/02/2011	44 to 47	603	38	0.20 U	170,000	510,000	0.533	ND	NA	4.7	1,463.5	6,880.7	8,344.2	0.82	969,266	0.323	0.61	0.324	0.608
LC34-BW0003E	08/02/2011	51 to 54	905	58	0.20 U	420,000	890,000	0.808	ND	NA	3.3	3,615.7	12,007.6	15,623.3	0.77	1,814,798	0.605	0.75	0.487	0.602
LC34-BW0003F	08/02/2011	58 to 61	107	2.5	0.20 U	93	18,000	0.035	ND	NA	303.3	0.8	242.8	243.7	1.00	28,302	0.009	0.27	0.058	1.657
LC34-IW0002I	08/01/2011	25 to 30	487	35	45	11,000	630,000	0.483	0.416	1.162	89.8	94.7	8,499.7	8,594.4	0.99	998,329	0.333	0.69	0.262	0.542
LC34-IW0002D	08/01/2011	35 to 40	1,130	9.1	42	110	200,000	0.126	0.389	0.325	2,849.4	0.9	2,698.3	2,699.3	1.00	313,548	0.105	0.83	0.608	4.807
LC34-IW0002D1	08/01/2011	50 to 55	587	9.0	5.1	31	2,600	0.125	0.048	2.623	131.4	0.3	35.1	35.3	0.99	4,106	0.001	0.01	0.316	2.525
LC34-IW0076	08/01/2011	70 to 80	3.7	1.2	0.20 U	550	200	0.017	ND	NA	0.6	4.7	2.7	7.4	0.36	863	0.000	NA	0.002	NA
LC34-RW0007	08/01/2011	35 to 42	327	28	2.3	53 U	180,000	0.385	0.021	17.898	NA	ND	2,428.5	2,428.5	1.00	282,094	0.094	0.24	0.176	0.457
LC34-RW0008	08/01/2011	47 to 57	73	4.8	0.20 U	4	63	0.067	ND	NA	24.7	0.0	0.8	0.9	0.96	103	0.000	0.00	0.039	0.590
Average (all wells)						**74,431**	**221,044**	**0.23**	**0.23**					**2,845**	**0.84**	**330,473**	**0.11**	**0.51**	**0.14**	**1.10**
Average (subset of wells, same as 07/07/2011)						**88,714**	**252,801**	**0.30**	**0.23**					**3,757**	**0.74**	**436,411**	**0.15**	**0.53**	**0.18**	**0.69**

Notes:

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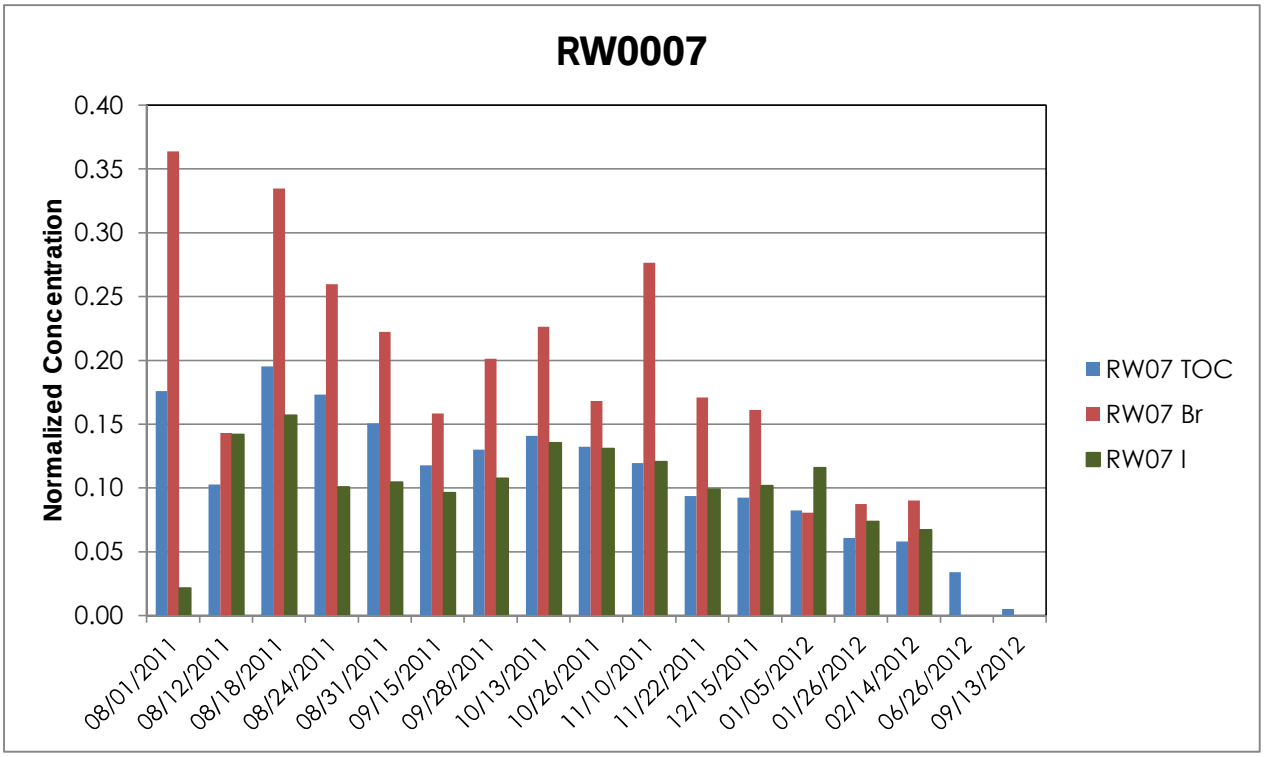
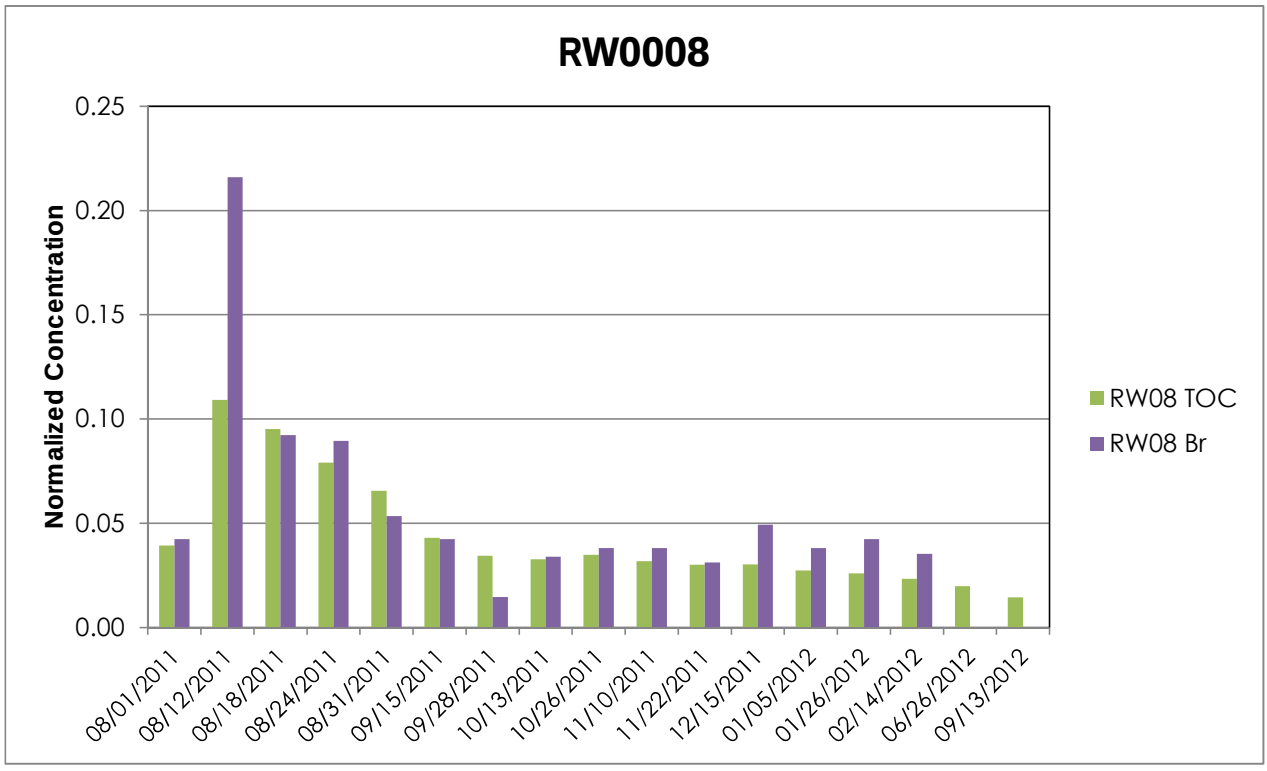
3. mg/L indicates milligrams per liter.
4. mol indicates moles.
5. µmol/L indicate micromoles per liter.
6. NA indicates not analyzed or not applicable.
7. ND indicates non-detect.
8. U indicates result not detected above the method detection limit (MDL).
9. nBA - n-Butyl Acetate
10. nBUT - n-Butanol
11. Br - Bromide
12. I - Iodide
13. TOC - total organic carbon
14. $Br^{(0)}$ - Bromide concentration in injectate
15. $I^{(0)}$ - Iodide concentration in injectate
16. $TOC^{(0)}$ - TOC concentration in injectate
17. ' indicates normalized concentration; i.e., $Br' = Br/Br^{(0)}$

Figure E-4-1. Normalized TOC and Tracer Recovery from Extraction Wells

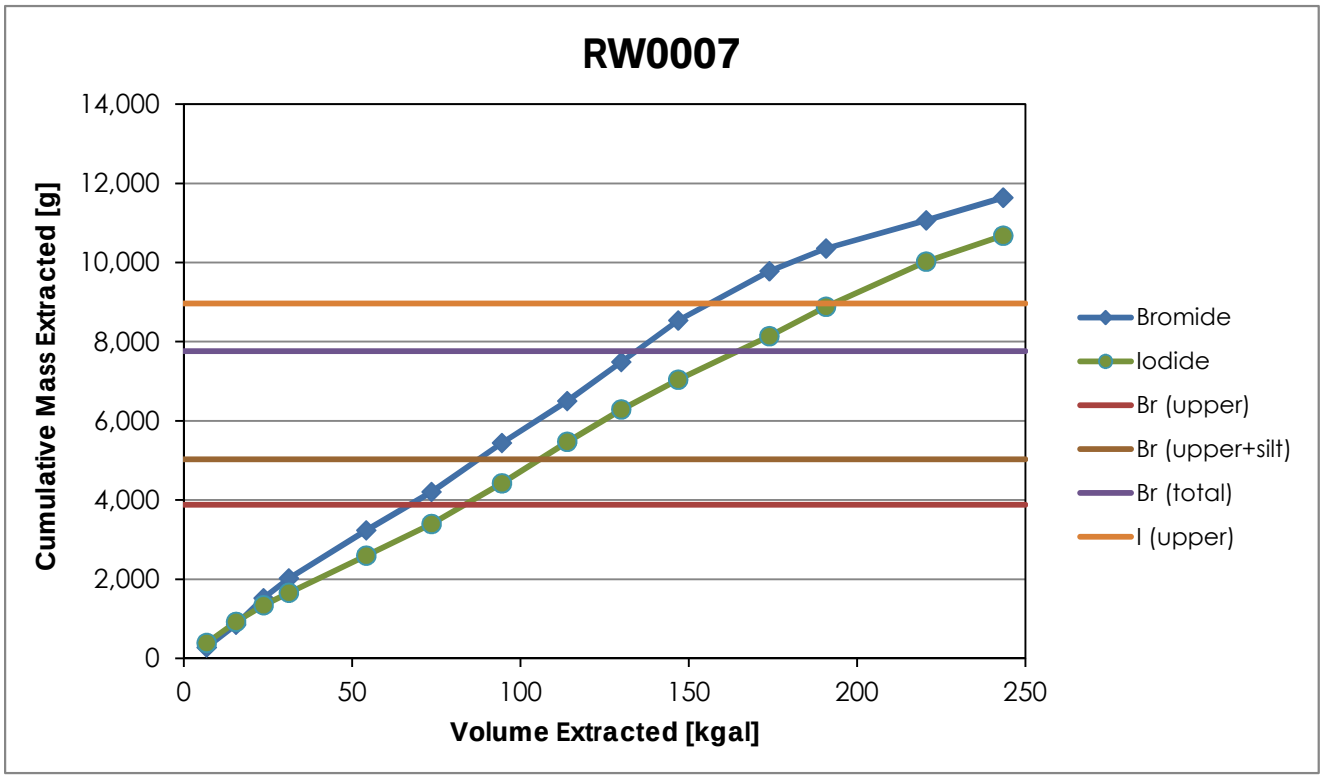


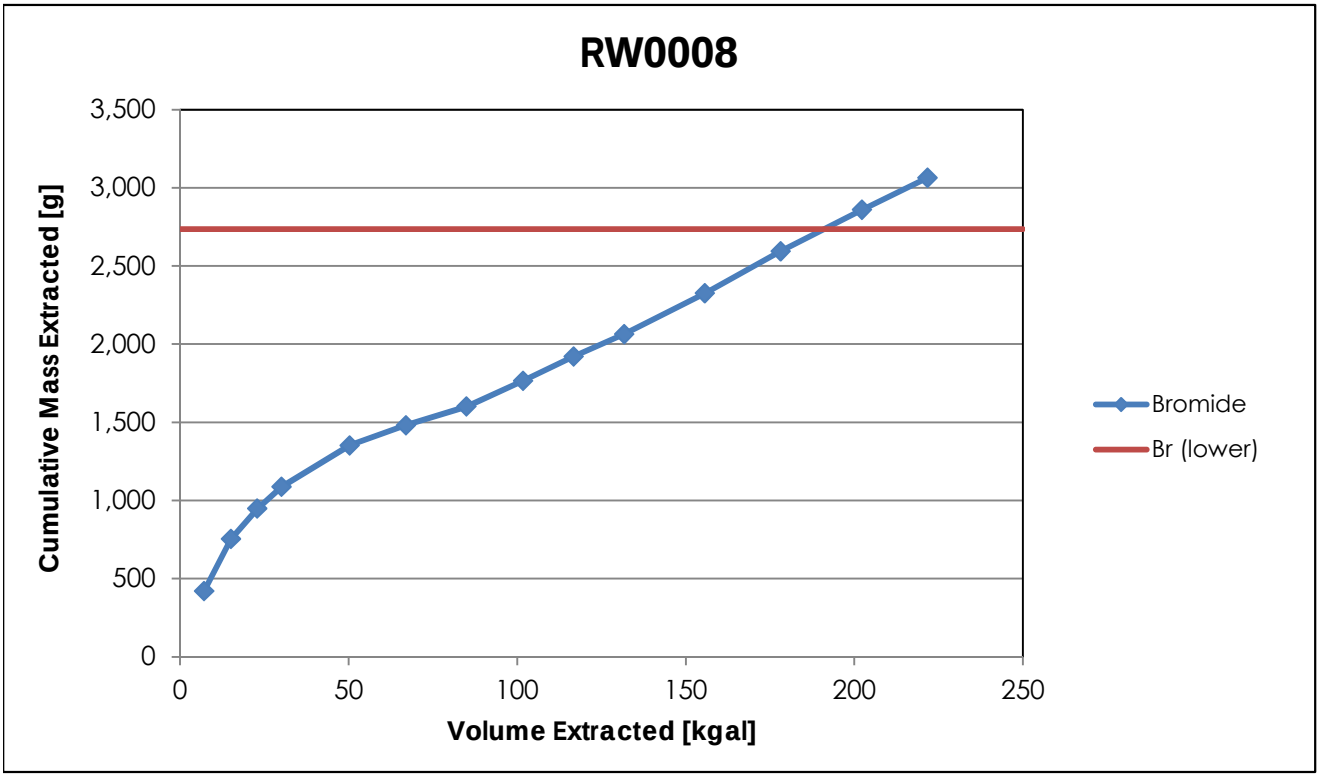


Notes:

1. Normalized concentration is the ratio of the measured concentration to the average concentration in the injectate, as determined from the batch QC samples.

Figure E-4-2. Tracer Recovery at Extraction Wells



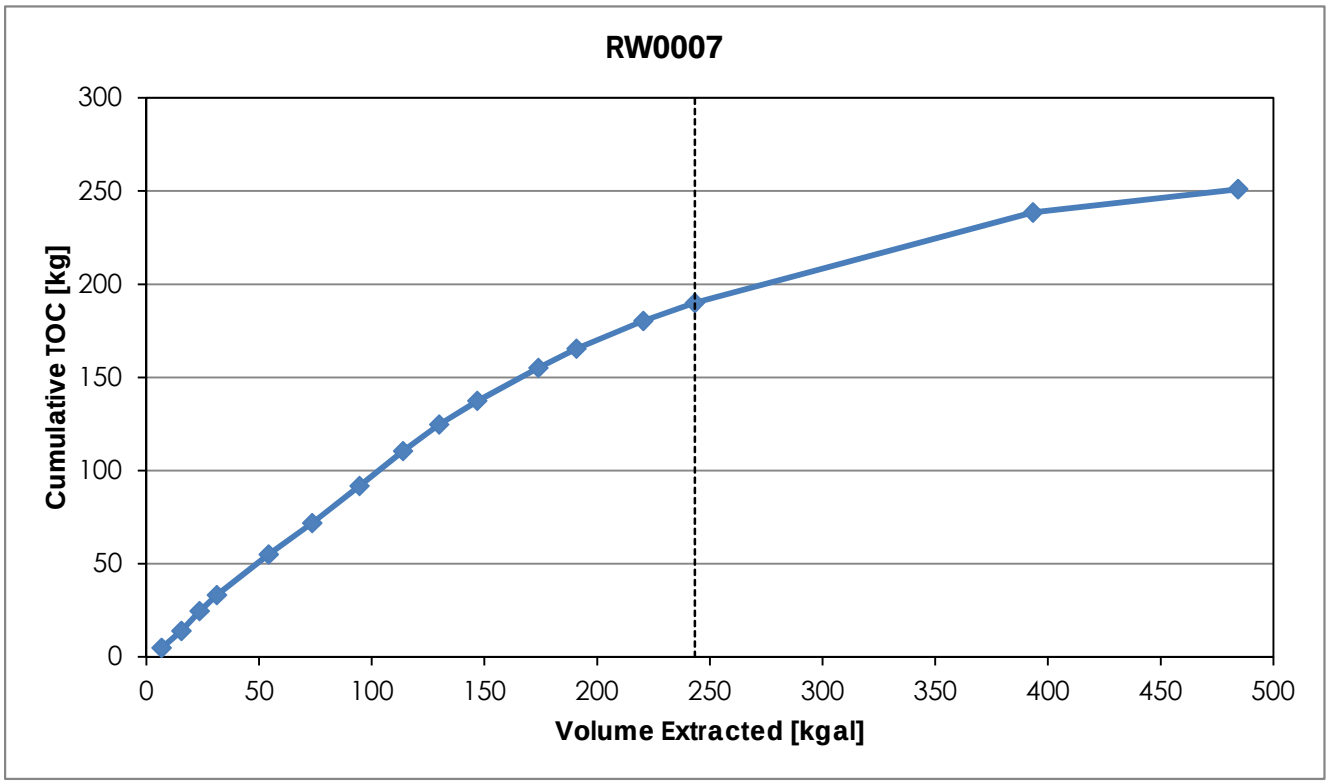


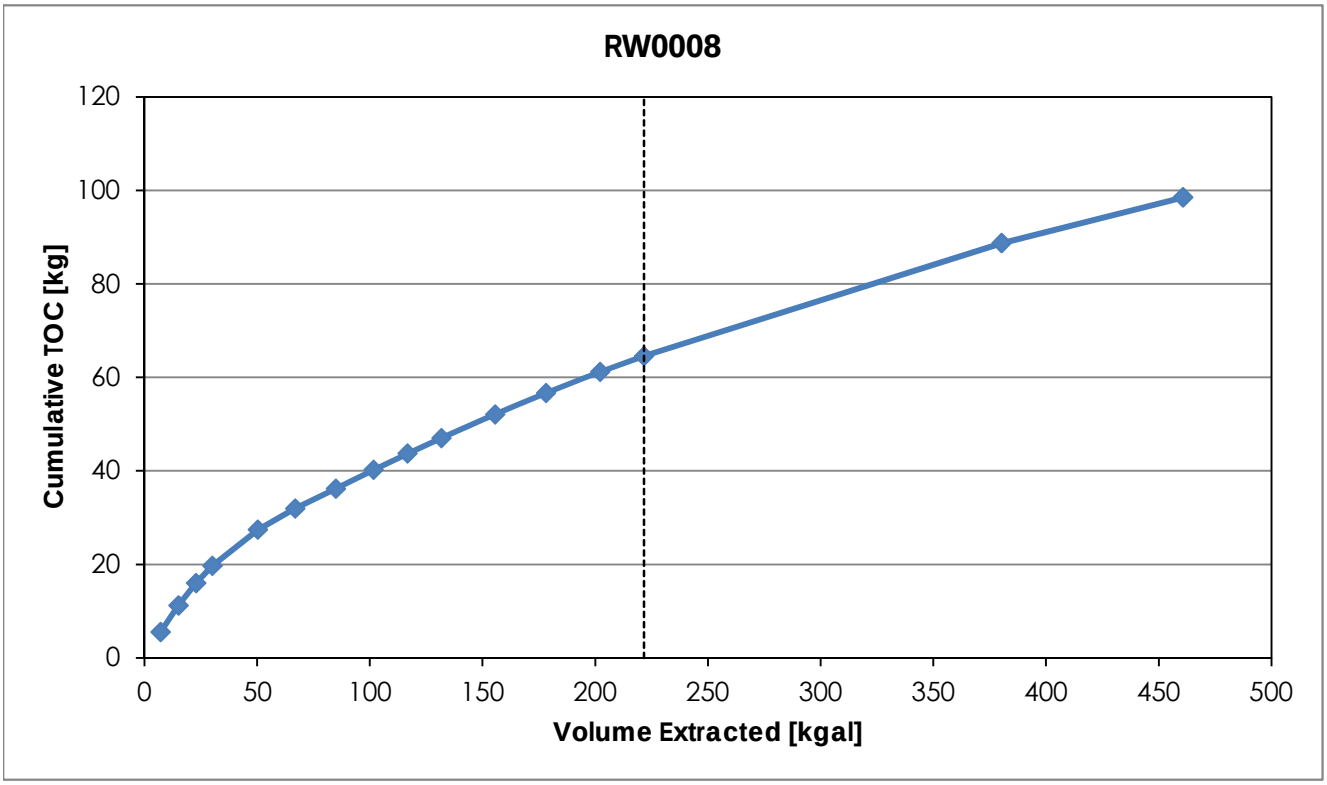
Notes:

Horizontal lines correspond to the mass of tracer added to the injectate targeting the upper zone, middle silty clay zone, and lower zone.

Iodide was only added to the upper zone; the horizontal line is also the total mass added.

Figure E-4-3. Cumulative TOC Recovery at Extraction Wells





Notes:

The total TOC added to the system was 238 kg (from 384 kg nBA). Based on the injection intervals, this corresponds to 119 kg to the upper zone, 35.7 kg to the middle silty clay zone, and 83.3 kg to the lower zone.

Vertical dashed lines mark the end of the Main Recirculation Phase (February 2012).

ATTACHMENT E-5

DATA USING MOLAR BASIS

Table E-5-1 RW0007 Analytical Results (µg/L)

Table E-5-2 RW0007 Analytical results (molar concentrations)

Table E-5-3 RW0007 Extent of Dechlorination

Table E-5-4 RW0007 Cumulative Amounts of VOCs Extracted

Table E-5-5 RW0007 Carbon in TOC and VFAs (Molar Equivalents)

Table E-5-6 RW0008 Analytical Results (µg/L)

Table E-5-7 RW0008 Analytical results (molar concentrations)

Table E-5-8 RW0008 Extent of Dechlorination

Table E-5-9 RW0008 Cumulative Amounts of VOCs Extracted

Table E-5-10 RW0008 Carbon in TOC and VFAs (Molar Equivalents)

Figure E-5-1 RW0007 Cumulative VOCs Extracted

Figure E-5-2 RW0008 Cumulative VOCs Extracted

Table E-5-1. RW0007 Analytical Results (µg/L)

Event	Sample Date	TCE	cDCE	tDCE	VC	ethene	nBA	n-Butanol	CFC-113	methane
Baseline	02-Feb-2011	**54,000**	**50,000**	**300**	60 U	na	60 U	1,400 U	**13,000**	na
Baseline Flux Week 1	22-Mar-2011	**14,000**	**27,000**	**210**	**610**	na	75 U	1,700 U	**7,400**	na
Baseline Flux Week 2	28-Mar-2011	**17,000**	**31,000**	**200**	**740**	**8.6**	60 U	1,400 U	**8,200**	**40**
Baseline Flux Week 3	07-Apr-2011	**14,000**	**33,000**	**290**	**1,000**	na	75 U	1,700 U	**11,000**	na
Baseline Flux Week 4	19-Apr-2011	**12,000**	**25,000**	**170**	**990**	**11**	75 U	1,700 U	**8,500**	**47**
PED Distribution Check	07-Jul-2011	**21,000**	**20,000**	**150**	**690**	na	**410,000**	**140,000**	**13,000**	na
Post Biomass Growth	01-Aug-2011	**2,400**	**31,000**	**130**	**770**	**9.8**	53 U	**180,000**	**2,900**	**35**
Main Recirc Wk1	12-Aug-2011	**3,300**	**26,000**	50 U	58 U	**14**	**33,000**	**230,000**	**16,000**	**93**
Main Recirc Wk2	18-Aug-2011	**7,100**	**23,000**	50 U	**1,400**	**14**	53 U	**130,000**	**11,000**	**76**
Main Recirc Wk3	24-Aug-2011	**10,000**	**21,000**	**130**	**1,700**	**12**	42 U	**26,000**	**13,000**	**100**
Main Recirc Wk4	31-Aug-2011	**10,000**	**20,000**	**150**	**2,000**	**15**	21 U	**29,000**	**13,000**	**150**
Main Recirc Wk6	15-Sep-2011	**8,400**	**19,000**	**150**	**3,100**	**33**	21 U	1,100 U	**14,000**	**290**
Main Recirc Wk8	28-Sep-2011	**5,700**	**15,000**	**140**	**3,700**	**53**	21 U	**2,700**	**12,000**	**380**
Main Recirc Wk10	13-Oct-2011	**4,300**	**15,000**	**190**	**4,300**	**86**	21 U	**2,900**	**11,000**	**420**
Main Recirc Wk12	26-Oct-2011	**3,900**	**16,000**	**170**	**4,800**	**110**	21 U	**1,800**	**11,000**	**330**
Main Recirc Wk14	10-Nov-2011	**3,500**	**16,000**	**200**	**6,400**	**150**	21 U	1,100 U	**12,000**	**520**
Main Recirc Wk16	22-Nov-2011	**3,200**	**14,000**	**160**	**4,900**	**190**	21 U	1,100 U	**13,000**	**510**
Main Recirc Wk19	15-Dec-2011	**1,500**	**11,000**	**180**	**6,000**	**300**	21 U	1,100 U	**7,500**	**1,100**
Main Recirc Wk22	05-Jan-2012	**160**	**4,500**	**200**	**6,200**	**740**	11 U	530 U	**2,600**	**3,200**
Main Recirc Wk25	26-Jan-2012	**1,700**	**15,000**	**250**	**10,000**	**480**	0.21 U	11 U	**11,000**	**1,300**
Main Recirc Wk28	14-Feb-2012	**560**	**8,900**	**250**	**6,400**	**500**	11 U	530 U	**5,600**	**1,100**
IM Recirc Wk32	15-Mar-2012	**120**	**3,600**	**160**	**3,000**	na	5.3 U	270 U	**870**	na
IM Recirc Wk37	19-Apr-2012	**650**	**7,200**	**200**	**8,100**	na	5.3 U	270 U	**8,200**	na
IM Recirc Wk41	17-May-2012	**520**	**6,000**	**190**	**8,700**	na	11 U	530 U	**11,000**	na
IM Recirc Wk47	26-Jun-2012	**820**	**5,500**	**250**	**8,100**	**1,200**	11 U	530 U	**9,500**	**1,700**
IM Recirc Wk50	19-Jul-2012	**640**	**4,600**	**260**	**7,900**	na	21 U	1,100 U	**8,900**	na
IM Recirc Wk54	16-Aug-2012	**660**	**4,300**	**190**	**7,400**	na	20 U	870 U	**8,700**	na
IM Recirc Wk58	13-Sep-2012	**210**	**2,300**	**100**	**2,000**	**370**	7.9 U	350 U	**2,900**	**360**

Notes:

Concentrations reported in micrograms per liter (µg/L)

Qualifiers for detected data not shown. See Tables E-1-5 and E-1-6 for complete dataset.

PED addition was 21-Jun-11 to 28-Jun-11.

na - not analyzed/not available

Table E-5-2. RW0007 Analytical results (molar concentrations)

Event	Sample Date	TCE µmol/L	cDCE µmol/L	tDCE µmol/L	VC µmol/L	ethene µmol/L	nBA µmol/L	n-Butanol µmol/L	CFC-113 µmol/L	methane µmol/L	Total TCE-VOCs µmol/L	TVOC Ratio
Baseline	02-Feb-2011	411.0	515.7	3.1	0.0	0.0	0.0	0.0	69.38	NC	929.8	--
Baseline Flux Week 1	22-Mar-2011	106.6	278.5	2.2	9.8	0.0	0.0	0.0	39.49	NC	397.0	
Baseline Flux Week 2	28-Mar-2011	129.4	319.8	2.1	11.8	0.3	0.0	0.0	43.76	2.49	463.4	423.4
Baseline Flux Week 3	07-Apr-2011	106.6	340.4	3.0	16.0	0.0	0.0	0.0	58.71	NC	465.9	
Baseline Flux Week 4	19-Apr-2011	91.3	257.9	1.8	15.8	0.4	0.0	0.0	45.36	2.93	367.2	
PED Distribution Check	07-Jul-2011	159.8	206.3	1.5	11.0	0.0	3,529.7	1,888.8	69.38	NC	378.7	0.9
Post Biomass Growth	01-Aug-2011	18.3	319.8	1.3	12.3	0.3	0.0	2,428.5	15.48	2.18	352.0	0.8
Main Recirc Wk1	12-Aug-2011	25.1	268.2	0.0	0.0	0.5	284.1	3,103.1	85.39	5.80	293.8	0.7
Main Recirc Wk2	18-Aug-2011	54.0	237.2	0.0	22.4	0.5	0.0	1,753.9	58.71	4.74	314.2	0.7
Main Recirc Wk3	24-Aug-2011	76.1	216.6	1.3	27.2	0.4	0.0	350.8	69.38	6.23	321.7	0.8
Main Recirc Wk4	31-Aug-2011	76.1	206.3	1.5	32.0	0.5	0.0	391.3	69.38	9.35	316.5	0.7
Main Recirc Wk6	15-Sep-2011	63.9	196.0	1.5	49.6	1.2	0.0	0.0	74.72	18.08	312.2	0.7
Main Recirc Wk8	28-Sep-2011	43.4	154.7	1.4	59.2	1.9	0.0	36.4	64.04	23.69	260.6	0.6
Main Recirc Wk10	13-Oct-2011	32.7	154.7	2.0	68.8	3.1	0.0	39.1	58.71	26.18	261.3	0.6
Main Recirc Wk12	26-Oct-2011	29.7	165.0	1.8	76.8	3.9	0.0	24.3	58.71	20.57	277.2	0.7
Main Recirc Wk14	10-Nov-2011	26.6	165.0	2.1	102.4	5.3	0.0	0.0	64.04	32.42	301.5	0.7
Main Recirc Wk16	22-Nov-2011	24.4	144.4	1.7	78.4	6.8	0.0	0.0	69.38	31.80	255.6	0.6
Main Recirc Wk19	15-Dec-2011	11.4	113.5	1.9	96.0	10.7	0.0	0.0	40.03	68.58	233.4	0.6
Main Recirc Wk22	05-Jan-2012	1.2	46.4	2.1	99.2	26.4	0.0	0.0	13.88	199.50	175.3	0.4
Main Recirc Wk25	26-Jan-2012	12.9	154.7	2.6	160.0	17.1	0.0	0.0	58.71	81.05	347.4	0.8
Main Recirc Wk28	14-Feb-2012	4.3	91.8	2.6	102.4	17.8	0.0	0.0	29.89	68.58	218.9	0.5
IM Recirc Wk32	15-Mar-2012	0.9	37.1	1.7	48.0	NC	0.0	0.0	4.64	NC	87.7	0.2
IM Recirc Wk37	19-Apr-2012	4.9	74.3	2.1	129.6	NC	0.0	0.0	43.76	NC	210.9	0.5
IM Recirc Wk41	17-May-2012	4.0	61.9	2.0	139.2	NC	0.0	0.0	58.71	NC	207.0	0.5
IM Recirc Wk47	26-Jun-2012	6.2	56.7	2.6	129.6	42.8	0.0	0.0	50.70	105.99	237.9	0.6
IM Recirc Wk50	19-Jul-2012	4.9	47.4	2.7	126.4	NC	0.0	0.0	47.50	NC	181.4	0.4
IM Recirc Wk54	16-Aug-2012	5.0	44.4	2.0	118.4	NC	0.0	0.0	46.43	NC	169.7	0.4
IM Recirc Wk58	13-Sep-2012	1.6	23.7	1.0	32.0	13.2	0.0	0.0	15.48	22.44	71.5	0.2

Notes:

µmol/L - micromoles per liter

mmol/L - millimoles per liter

Values of 0.0 reflect non-detects (or not-analyzed) incorporated in calculations in subsequent tables.

NC - Not calculated, value may be non-detect or not available. See Tables E-1-5 and E-1-6 for complete dataset.

Table E-5-3. RW0007 Extent of Dechlorination

Event	Sample Date	Dechlorination Extent		Notes
		fraction	%	
Baseline	02-Feb-2011	0.186	19%	
Baseline Flux Week 1	22-Mar-2011	0.252	25%	
Baseline Flux Week 2	28-Mar-2011	0.249	25%	
Baseline Flux Week 3	07-Apr-2011	0.269	27%	
Baseline Flux Week 4	19-Apr-2011	0.266	27%	
PED Distribution Check	07-Jul-2011	0.202	20%	
Post Biomass Growth	01-Aug-2011	0.328	33%	
Main Recirc Wk1	12-Aug-2011	0.306	31%	
Main Recirc Wk2	18-Aug-2011	0.301	30%	
Main Recirc Wk3	24-Aug-2011	0.284	28%	
Main Recirc Wk4	31-Aug-2011	0.288	29%	
Main Recirc Wk6	15-Sep-2011	0.321	32%	
Main Recirc Wk8	28-Sep-2011	0.358	36%	
Main Recirc Wk10	13-Oct-2011	0.387	39%	
Main Recirc Wk12	26-Oct-2011	0.399	40%	
Main Recirc Wk14	10-Nov-2011	0.429	43%	
Main Recirc Wk16	22-Nov-2011	0.421	42%	
Main Recirc Wk19	15-Dec-2011	0.485	48%	
Main Recirc Wk22	05-Jan-2012	0.620	62%	
Main Recirc Wk25	26-Jan-2012	0.507	51%	
Main Recirc Wk28	14-Feb-2012	0.537	54%	
IM Recirc Wk32	15-Mar-2012	0.512	51%	no analysis for ethene, dechlorination extent is artificially low
IM Recirc Wk37	19-Apr-2012	0.530	53%	
IM Recirc Wk41	17-May-2012	0.551	55%	
IM Recirc Wk47	26-Jun-2012	0.626	63%	
IM Recirc Wk50	19-Jul-2012	0.557	56%	no analysis for ethene, dechlorination extent is artificially low
IM Recirc Wk54	16-Aug-2012	0.556	56%	
IM Recirc Wk58	13-Sep-2012	0.598	60%	

Notes:

Dechlorination extent (%) calculated using: $(1 - \frac{3[TCE]+2[cDCE]+2[tDCE]+[VC]}{3([TCE]+[cDCE]+[tDCE]+[VC]+[ethene])}) \times 100$

Table E-5-4. RW0007 Cumulative Amounts of VOCs Extracted

Event	Sample Date	Days	Volume Extracted (kgal)	Amount Extracted in Elapsed Interval (mol)						Amount Extracted Cumulative in Stage (mol)						
				TCE	cDCE	tDCE	VC	ethene	methane	TCE	cDCE	tDCE	VC	ethene	TVOCs	methane
Baseline	02-Feb-2011															
Baseline Flux Week 1	22-Mar-2011	7	16.3	6.6	17.1	0.1	0.6	0.0	0.0	6.6	17.1	0.1	0.6	0.0	24.4	0.0
Baseline Flux Week 2	28-Mar-2011	15	28.4	5.4	13.7	0.1	0.5	0.0	0.1	12.0	30.8	0.2	1.1	0.0	44.1	0.1
Baseline Flux Week 3	07-Apr-2011	24	41.0	5.6	15.8	0.1	0.7	0.0	0.1	17.6	46.6	0.4	1.8	0.0	66.3	0.1
Baseline Flux Week 4	19-Apr-2011	35	58.7	6.7	20.1	0.2	1.1	0.0	0.1	24.2	66.7	0.5	2.8	0.0	94.3	0.2
PED Distribution Check	07-Jul-2011															
Post Biomass Growth	01-Aug-2011															
		0	0													
Main Recirc Wk1	12-Aug-2011	3	6.8	0.6	6.9	0.0	0.0	0.0	0.1	0.6	6.9	0.0	0.0	0.0	7.6	0.1
Main Recirc Wk2	18-Aug-2011	9	15.5	1.3	8.3	0.0	0.4	0.0	0.2	1.9	15.2	0.0	0.4	0.0	17.6	0.3
Main Recirc Wk3	24-Aug-2011	15	23.7	2.0	7.0	0.0	0.8	0.0	0.2	4.0	22.2	0.0	1.1	0.0	27.4	0.4
Main Recirc Wk4	31-Aug-2011	22	31.2	2.2	6.1	0.0	0.8	0.0	0.2	6.1	28.3	0.1	2.0	0.1	36.5	0.7
Main Recirc Wk6	15-Sep-2011	37	54.2	6.1	17.5	0.1	3.5	0.1	1.2	12.2	45.8	0.2	5.5	0.1	63.9	1.9
Main Recirc Wk8	28-Sep-2011	50	73.6	3.9	12.9	0.1	4.0	0.1	1.5	16.2	58.7	0.3	9.5	0.2	84.9	3.4
Main Recirc Wk10	13-Oct-2011	65	94.5	3.0	12.2	0.1	5.1	0.2	2.0	19.2	70.9	0.4	14.6	0.4	105.6	5.4
Main Recirc Wk12	26-Oct-2011	79	113.9	2.3	11.7	0.1	5.3	0.3	1.7	21.5	82.6	0.6	19.9	0.7	125.3	7.1
Main Recirc Wk14	10-Nov-2011	93	129.9	1.7	10.0	0.1	5.4	0.3	1.6	23.2	92.6	0.7	25.4	1.0	142.9	8.7
Main Recirc Wk16	22-Nov-2011	105	146.9	1.6	9.9	0.1	5.8	0.4	2.1	24.8	102.6	0.8	31.2	1.4	160.7	10.7
Main Recirc Wk19	15-Dec-2011	128	173.9	1.8	13.2	0.2	8.9	0.9	5.1	26.6	115.8	1.0	40.1	2.3	185.8	15.9
Main Recirc Wk22	05-Jan-2012	149	190.8	0.4	5.1	0.1	6.2	1.2	8.5	27.1	120.9	1.1	46.3	3.4	198.8	24.4
Main Recirc Wk25	26-Jan-2012	170	220.5	0.8	11.3	0.3	14.6	2.4	15.8	27.8	132.2	1.4	60.9	5.9	228.2	40.2
Main Recirc Wk28	14-Feb-2012	189	243.4	0.7	10.7	0.2	11.4	1.5	6.5	28.6	142.9	1.6	72.3	7.4	252.8	46.7
IM Recirc Wk32	15-Mar-2012	219	269.3	0.3	6.3	0.2	7.4	0.9	3.4	28.8	149.2	1.8	79.6	8.3	267.8	50.1
IM Recirc Wk37	19-Apr-2012	254	309.6	0.4	8.5	0.3	13.6	0.0	0.0	29.3	157.7	2.1	93.2	8.3	290.6	50.1
IM Recirc Wk41	17-May-2012	282	349.0	0.7	10.1	0.3	20.0	0.0	0.0	30.0	167.8	2.4	113.2	8.3	321.7	50.1
IM Recirc Wk47	26-Jun-2012	322	393.4	0.9	10.0	0.4	22.6	3.6	8.9	30.8	177.8	2.8	135.8	11.9	359.1	59.0
IM Recirc Wk50	19-Jul-2012	345	423.1	0.6	5.9	0.3	14.4	2.4	6.0	31.4	183.7	3.1	150.2	14.3	382.7	64.9
IM Recirc Wk54	16-Aug-2012	373	460.6	0.7	6.5	0.3	17.4	0.0	0.0	32.1	190.2	3.4	167.6	14.3	407.6	64.9
IM Recirc Wk58	13-Sep-2012	401	492.2	0.4	4.1	0.2	9.0	0.8	1.3	32.5	194.2	3.6	176.6	15.1	422.0	66.3
				Mass removed, Baseline Flux weeks 1 - 4 (kg):						3.2	6.5	0.0	0.2	0.0	9.9	0.0
				Mass removed, weeks 1 - 28 (kg):						3.8	13.9	0.2	4.5	0.2	22.5	0.7
				Mass removed, weeks 29-58 (kg):						0.5	5.0	0.2	6.5	0.2	12.4	0.3
				Mass removed, weeks 1 - 58 (kg):						4.3	18.8	0.3	11.0	0.4	34.9	1.1

Notes:

kgal - kilogallons
kg - kilograms
TVOCs - total volatile organic compounds

Table E-5-5. RW0007 Carbon in TOC and VFAs (Molar Equivalents)

		Concentration (mg/L)				Molar Equivalents Carbon (mmol C/L)							
Event	**Sample Date**	**TOC**	**Acetic Acid**	**Butanoic Acid**	**Propionic Acid**	**TOC**	**Acetic Acid**	**Butanoic Acid**	**Propionic Acid**	**Sum VFAs**	**nBA**	**nBuOH**	**Sum VOCs**
Baseline Flux Week 1	22-Mar-2011	5.3	33	0.56	0.13	0.44	1.10	0.03	0.01	1.17	0	0	0.87
Baseline Flux Week 2	28-Mar-2011	4.9	0.073	0.56	0.13	0.41	0.00	0.03	0.01	0.03	0	0	1.02
Baseline Flux Week 3	07-Apr-2011	5.3	24	0.56	0.13	0.44	0.80	0.03	0.01	0.83	0	0	1.05
Baseline Flux Week 4	19-Apr-2011	4.4	22	0.56	0.13	0.37	0.73	0.03	0.01	0.76	0	0	0.83
Baseline Flux Week 4	19-Apr-2011*	4.5	22	0.56	0.13	0.38	0.73	0.03	0.01	0.76	0	0	0.83
Post Biomass Growth	01-Aug-2011	327	350	230	5.2	27.25	11.66	10.44	0.21	22.31	0	9.71	10.45
Main Recirc Wk1	12-Aug-2011	191	260	68	0.64	15.92	8.66	3.09	0.03	11.77	1.70	12.41	14.88
Main Recirc Wk2	18-Aug-2011	363	380	320	11	30.25	12.66	14.53	0.45	27.63	0	7.02	7.77
Main Recirc Wk3	24-Aug-2011	322	320	350	18	26.83	10.66	15.89	0.73	27.28	0	1.40	2.19
Main Recirc Wk4	31-Aug-2011	280	290	310	17	23.33	9.66	14.07	0.69	24.42	0	1.57	2.35
Main Recirc Wk6	15-Sep-2011	219	250	250	16	18.25	8.33	11.35	0.65	20.32	0	0	0.79
Main Recirc Wk8	28-Sep-2011	242	260	250	18	20.17	8.66	11.35	0.73	20.74	0	0.15	0.82
Main Recirc Wk10	13-Oct-2011	262	280	300	22	21.83	9.33	13.62	0.89	23.84	0	0.16	0.82
Main Recirc Wk12	26-Oct-2011	246	270	270	17	20.50	8.99	12.26	0.69	21.94	0	0.10	0.79
Main Recirc Wk14	10-Nov-2011	222	270	240	16	18.50	8.99	10.90	0.65	20.54	0	0	0.76
Main Recirc Wk16	22-Nov-2011	174	240	170	12	14.50	7.99	7.72	0.49	16.20	0	0	0.68
Main Recirc Wk19	15-Dec-2011	172	230	130	9.7	14.33	7.66	5.90	0.39	13.95	0	0	0.62
Main Recirc Wk22	05-Jan-2012	153	220	54	8.9	12.75	7.33	2.45	0.36	10.14	0	0	0.58
Main Recirc Wk25	26-Jan-2012	113	170	50	5.3	9.42	5.66	2.27	0.21	8.15	0	0	0.89
Main Recirc Wk28	14-Feb-2012	108	170	49	4.9	9.00	5.66	2.22	0.20	8.08	0	0	0.57
IM Recirc Wk47	26-Jun-2012	63	na	na	na	5.25	na	na	na	0.00	0	0	0.68
IM Recirc Wk58	13-Sep-2012	9.6	na	na	na	0.80	na	na	na	0.00	0	0	0.20

Notes:

* no VFA analysis

mg/L - milligrams per liter

mmol C/L - millimole equivalents of carbon per liter

na - not analyzed/not available

Table E-5-5. RW0007 Carbon in TOC and VFAs (Molar Equivalents)

		Ratios			VFAs - Percentage of Total VFAs			VFAs - Percentage of TOC		
Event	**Sample Date**	**VFAs+VOCs**	**(VFAs+VOCs)/TOC**	**VFAs/TOC**	**Acetic:Total**	**Butanoic:Total**	**Propionic:Total**	**Acetic:TOC**	**Butanoic:TOC**	**Propionic:TOC**
Baseline Flux Week 1	22-Mar-2011	2.04	4.62	2.65	0.973	0.023	0.005	2.488	0.058	0.012
Baseline Flux Week 2	28-Mar-2011	1.05	2.57	0.08	0.073	0.768	0.159	0.006	0.062	0.013
Baseline Flux Week 3	07-Apr-2011	1.88	4.25	1.88	0.963	0.031	0.006	1.810	0.058	0.012
Baseline Flux Week 4	19-Apr-2011	1.59	4.34	2.08	0.960	0.033	0.007	1.998	0.069	0.014
Baseline Flux Week 4	19-Apr-2011*	1.59	4.24	2.04	0.960	0.033	0.007	1.954	0.068	0.014
Post Biomass Growth	01-Aug-2011	32.76	1.20	0.82	0.522	0.468	0.009	0.428	0.383	0.008
Main Recirc Wk1	12-Aug-2011	26.65	1.67	0.74	0.736	0.262	0.002	0.544	0.194	0.002
Main Recirc Wk2	18-Aug-2011	35.40	1.17	0.91	0.458	0.526	0.016	0.418	0.480	0.015
Main Recirc Wk3	24-Aug-2011	29.47	1.10	1.02	0.391	0.583	0.027	0.397	0.592	0.027
Main Recirc Wk4	31-Aug-2011	26.77	1.15	1.05	0.395	0.576	0.028	0.414	0.603	0.030
Main Recirc Wk6	15-Sep-2011	21.12	1.16	1.11	0.410	0.558	0.032	0.456	0.622	0.036
Main Recirc Wk8	28-Sep-2011	21.56	1.07	1.03	0.418	0.547	0.035	0.429	0.563	0.036
Main Recirc Wk10	13-Oct-2011	24.66	1.13	1.09	0.391	0.571	0.037	0.427	0.624	0.041
Main Recirc Wk12	26-Oct-2011	22.73	1.11	1.07	0.410	0.559	0.031	0.439	0.598	0.034
Main Recirc Wk14	10-Nov-2011	21.30	1.15	1.11	0.438	0.531	0.032	0.486	0.589	0.035
Main Recirc Wk16	22-Nov-2011	16.88	1.16	1.12	0.493	0.477	0.030	0.551	0.532	0.034
Main Recirc Wk19	15-Dec-2011	14.57	1.02	0.97	0.549	0.423	0.028	0.534	0.412	0.027
Main Recirc Wk22	05-Jan-2012	10.72	0.84	0.80	0.723	0.242	0.036	0.575	0.192	0.028
Main Recirc Wk25	26-Jan-2012	9.04	0.96	0.87	0.695	0.279	0.026	0.601	0.241	0.023
Main Recirc Wk28	14-Feb-2012	8.65	0.96	0.90	0.700	0.275	0.025	0.629	0.247	0.022
IM Recirc Wk47	26-Jun-2012	0.68	na	na	na	na	na	na	na	na
IM Recirc Wk58	13-Sep-2012	0.20	na	na	na	na	na	na	na	na

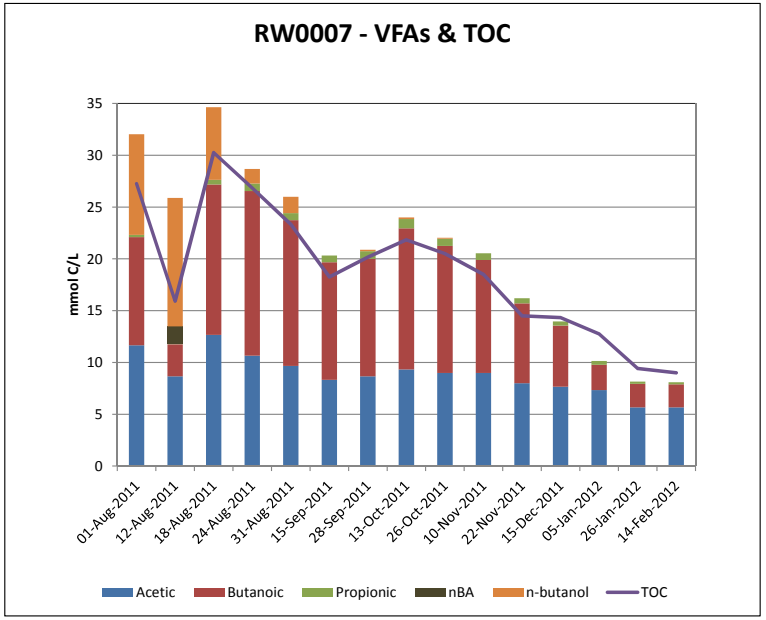


Table E-5-6. RW0008 Analytical Results (µg/L)

Event	Sample Date	TCE	cDCE	tDCE	VC	ethene	nBA	n-Butanol	CFC-113	methane
Baseline	02-Feb-2011	**4,900**	**3,300**	**20**	**18**	na	7.5 U	170 U	**620**	na
Baseline Flux Week 1	22-Mar-2011	**1,300**	**450**	**3**	**34**	na	3 U	67 U	**190**	na
Baseline Flux Week 2	28-Mar-2011	**840**	**280**	**1.9**	**14**	1 U	1.5 U	34 U	**130**	**7.7**
Baseline Flux Week 3	07-Apr-2011	**790**	**360**	**1.9**	**13**	na	1.5 U	34 U	**140**	na
Baseline Flux Week 4	19-Apr-2011	**1,000**	**510**	**3**	**24**	**11**	3 U	67 U	**160**	**47**
PED Distribution Check	07-Jul-2011	**1,100**	**4,000**	40 U	**140**	na	**81,000**	**8,700**	**62**	na
Post Biomass Growth	01-Aug-2011	**4**	**55**	**19**	**2,600**	**310**	**4**	**63 B,J**	**3**	**30**
Main Recirc Wk1	12-Aug-2011	**1,900**	**1,700**	4 U	4.7 U	**2**	**8,100**	**120,000**	**710**	**120**
Main Recirc Wk2	18-Aug-2011	**1,700**	**890**	2 U	**94**	**7.8**	2.1 U	**9,300**	**580**	**300**
Main Recirc Wk3	24-Aug-2011	**1,500**	**830**	**3.9**	**160**	**9.3**	2.1 U	110 U	**580**	**370**
Main Recirc Wk4	31-Aug-2011	**940**	**610**	**3.2**	**150**	**23**	1.1 U	53 U	**310**	**520**
Main Recirc Wk6	15-Sep-2011	**970**	**860**	**5.4**	**310**	**26**	1.1 U	53 U	**470**	**430**
Main Recirc Wk8	28-Sep-2011	**1,100**	**1,100**	**7.6**	**410**	**28**	1.1 U	53 U	**590**	**410**
Main Recirc Wk10	13-Oct-2011	**1,300**	**1,300**	**10**	**610**	**71**	2.1 U	110 U	**760**	**460**
Main Recirc Wk12	26-Oct-2011	**1,900**	**1,700**	**12**	**630**	**95**	2.1 U	110 U	**1,200**	**400**
Main Recirc Wk14	10-Nov-2011	**2,000**	**2,000**	**14**	**640**	**140**	2.1 U	110 U	**1,500**	**450**
Main Recirc Wk16	22-Nov-2011	**1,100**	**1,600**	**12**	**580**	**190**	2.1 U	110 U	**1,100**	**450**
Main Recirc Wk19	15-Dec-2011	**1,500**	**2,300**	**17**	**820**	**270**	4.2 U	210 U	**1,700**	**600**
Main Recirc Wk22	05-Jan-2012	**1,100**	**1,400**	**12**	**560**	**320**	2.1 U	110 U	**1,300**	**670**
Main Recirc Wk25	26-Jan-2012	**940**	**1,700**	**22**	**1,000**	**370**	2.1 U	110 U	**1,600**	**490**
Main Recirc Wk28	14-Feb-2012	**570**	**1,100**	**14**	**670**	**450**	2.1 U	110 U	**850**	**510**
IM Recirc Wk32	15-Mar-2012	**620**	**1,100**	**17**	**900**	na	2.1 U	110 U	**1,100**	na
IM Recirc Wk37	19-Apr-2012	**290**	**870**	**17**	**1,100**	na	2.1 U	110 U	**670**	na
IM Recirc Wk41	17-May-2012	**300**	**1,300**	**18**	**870**	na	2.1 U	110 U	**1,100**	na
IM Recirc Wk47	26-Jun-2012	**620**	**970**	**21**	**990**	**910**	1.1 U	53 U	**900**	**620**
IM Recirc Wk50	19-Jul-2012	**450**	**640**	**23**	**870**	na	1.1 U	53 U	**840**	na
IM Recirc Wk54	16-Aug-2012	**460**	**700**	**13**	**600**	na	2 U	87 U	**1,100**	na
IM Recirc Wk58	13-Sep-2012	**56**	**750**	**14**	**710**	**940**	2 U	87 U	**530**	**760**

Notes:

Concentrations reported in micrograms per liter (µg/L)

Qualifiers for detected data not shown. See Tables E-1-5 and E-1-6 for complete dataset.

na - not analyzed/not available

Table E-5-7. RW0008 Analytical results (molar concentrations)

Event	Sample Date	TCE µmol/L	cDCE µmol/L	tDCE µmol/L	VC µmol/L	ethene µmol/L	nBA µmol/L	n-Butanol µmol/L	CFC-113 µmol/L	methane µmol/L	Total TCE-VOCs µmol/L	TVOC Ratio
Baseline	02-Feb-2011	37.3	34.0	0.2	0.3	0.0	0.0	0.0	3.31	NC	71.8	
Baseline Flux Week 1	22-Mar-2011	9.9	4.6	0.0	0.5	0.0	0.0	0.0	1.01	NC	15.1	
Baseline Flux Week 2	28-Mar-2011	6.4	2.9	0.0	0.2	0.0	0.0	0.0	0.69	0.48	9.5	12.0
Baseline Flux Week 3	07-Apr-2011	6.0	3.7	0.0	0.2	0.0	0.0	0.0	0.75	NC	10.0	
Baseline Flux Week 4	19-Apr-2011	7.6	5.3	0.0	0.4	0.0	0.0	0.0	0.85	2.93	13.3	
PED Distribution Check	07-Jul-2011	8.4	41.3	0.0	2.2	0.0	697.3	117.4	0.33	NC	51.9	4.3
Post Biomass Growth	01-Aug-2011	0.0	0.6	0.2	41.6	11.1	0.03	0.0	0.02	1.87	53.4	4.5
Main Recirc Wk1	12-Aug-2011	14.5	17.5	0.0	0.0	0.1	69.7	1,619.0	3.79	7.48	32.1	2.7
Main Recirc Wk2	18-Aug-2011	12.9	9.2	0.0	1.5	0.3	0.0	125.5	3.10	18.70	23.9	2.0
Main Recirc Wk3	24-Aug-2011	11.4	8.6	0.0	2.6	0.3	0.0	0.0	3.10	23.07	22.9	1.9
Main Recirc Wk4	31-Aug-2011	7.2	6.3	0.0	2.4	0.8	0.0	0.0	1.65	32.42	16.7	1.4
Main Recirc Wk6	15-Sep-2011	7.4	8.9	0.1	5.0	0.9	0.0	0.0	2.51	26.81	22.2	1.9
Main Recirc Wk8	28-Sep-2011	8.4	11.3	0.1	6.6	1.0	0.0	0.0	3.15	25.56	27.4	2.3
Main Recirc Wk10	13-Oct-2011	9.9	13.4	0.1	9.8	2.5	0.0	0.0	4.06	28.68	35.7	3.0
Main Recirc Wk12	26-Oct-2011	14.5	17.5	0.1	10.1	3.4	0.0	0.0	6.40	24.94	45.6	3.8
Main Recirc Wk14	10-Nov-2011	15.2	20.6	0.1	10.2	5.0	0.0	0.0	8.01	28.05	51.2	4.3
Main Recirc Wk16	22-Nov-2011	8.4	16.5	0.1	9.3	6.8	0.0	0.0	5.87	28.05	41.1	3.4
Main Recirc Wk19	15-Dec-2011	11.4	23.7	0.2	13.1	9.6	0.0	0.0	9.07	37.41	58.1	4.9
Main Recirc Wk22	05-Jan-2012	8.4	14.4	0.1	9.0	11.4	0.0	0.0	6.94	41.77	43.3	3.6
Main Recirc Wk25	26-Jan-2012	7.2	17.5	0.2	16.0	13.2	0.0	0.0	8.54	30.55	54.1	4.5
Main Recirc Wk28	14-Feb-2012	4.3	11.3	0.1	10.7	16.0	0.0	0.0	4.54	31.80	42.6	3.6
IM Recirc Wk32	15-Mar-2012	4.7	11.3	0.2	14.4	NC	0.0	0.0	5.87	NC	30.6	2.6
IM Recirc Wk37	19-Apr-2012	2.2	9.0	0.2	17.6	NC	0.0	0.0	3.58	NC	29.0	2.4
IM Recirc Wk41	17-May-2012	2.3	13.4	0.2	13.9	NC	0.0	0.0	5.87	NC	29.8	2.5
IM Recirc Wk47	26-Jun-2012	4.7	10.0	0.2	15.8	32.4	0.0	0.0	4.80	38.65	63.2	5.3
IM Recirc Wk50	19-Jul-2012	3.4	6.6	0.2	13.9	NC	0.0	0.0	4.48	NC	24.2	2.0
IM Recirc Wk54	16-Aug-2012	3.5	7.2	0.1	9.6	NC	0.0	0.0	5.87	NC	20.5	1.7
IM Recirc Wk58	13-Sep-2012	0.4	7.7	0.1	11.4	33.5	0.0	0.0	2.83	47.38	53.2	4.4

Notes:

µmol/L - micromoles per liter

mmol/L - millimoles per liter

Values of 0.0 reflect non-detects incorporated in calculations in subsequent tables.

NC - Not calculated, value may be non-detect or not available. See Tables E-1-5 and E-1-6 for complete dataset.

Table E-5-8. RW0008 Extent of Dechlorination

Event	Sample Date	Dechlorination Extent		Notes
		fraction	%	
Baseline	02-Feb-2011	0.162	16%	
Baseline Flux Week 1	22-Mar-2011	0.127	13%	
Baseline Flux Week 2	28-Mar-2011	0.117	12%	
Baseline Flux Week 3	07-Apr-2011	0.139	14%	
Baseline Flux Week 4	19-Apr-2011	0.152	15%	
PED Distribution Check	07-Jul-2011	0.294	29%	
Post Biomass Growth	01-Aug-2011	0.730	73%	
Main Recirc Wk1	12-Aug-2011	0.184	18%	
Main Recirc Wk2	18-Aug-2011	0.182	18%	
Main Recirc Wk3	24-Aug-2011	0.214	21%	
Main Recirc Wk4	31-Aug-2011	0.271	27%	
Main Recirc Wk6	15-Sep-2011	0.325	32%	
Main Recirc Wk8	28-Sep-2011	0.336	34%	
Main Recirc Wk10	13-Oct-2011	0.379	38%	
Main Recirc Wk12	26-Oct-2011	0.351	35%	
Main Recirc Wk14	10-Nov-2011	0.366	37%	
Main Recirc Wk16	22-Nov-2011	0.451	45%	
Main Recirc Wk19	15-Dec-2011	0.454	45%	
Main Recirc Wk22	05-Jan-2012	0.513	51%	
Main Recirc Wk25	26-Jan-2012	0.550	55%	
Main Recirc Wk28	14-Feb-2012	0.634	63%	
IM Recirc Wk32	15-Mar-2012	0.439	44%	no analysis for ethene, dechlorination extent is artificially low
IM Recirc Wk37	19-Apr-2012	0.511	51%	
IM Recirc Wk41	17-May-2012	0.464	46%	
IM Recirc Wk47	26-Jun-2012	0.734	73%	
IM Recirc Wk50	19-Jul-2012	0.478	48%	no analysis for ethene, dechlorination extent is artificially low
IM Recirc Wk54	16-Aug-2012	0.433	43%	
IM Recirc Wk58	13-Sep-2012	0.822	82%	

Notes:

Dechlorination extent (%) calculated using: $\left(1-\frac{3[TCE]+2[cDCE]+2[tDCE]+[VC]}{3([TCE]+[cDCE]+[tDCE]+[VC]+[ethene])}\right) \times 100$

Table E-5-9. RW0008 Cumulative Amounts of VOCs Extracted

Event	Sample Date	Days	Volume Extracted (kgal)	Amount Extracted in Elapsed Interval (mol)						Amount Extracted Cumulative in Stage (mol)						
				TCE	cDCE	tDCE	VC	ethene	methane	TCE	cDCE	tDCE	VC	ethene	TVOCs	methane
Baseline	02-Feb-2011															
Baseline Flux Week 1	22-Mar-2011	7	14.3	0.53	0.25	0.00	0.03	0.00	0.00	0.5	0.3	0.0	0.0	0.0	0.8	0.0
Baseline Flux Week 2	28-Mar-2011	15	25.6	0.35	0.16	0.00	0.02	0.00	0.01	0.9	0.4	0.0	0.0	0.0	1.3	0.0
Baseline Flux Week 3	07-Apr-2011	24	35.5	0.23	0.12	0.00	0.01	0.00	0.01	1.1	0.5	0.0	0.1	0.0	1.7	0.0
Baseline Flux Week 4	19-Apr-2011	35	44.1	0.22	0.15	0.00	0.01	0.00	0.05	1.3	0.7	0.0	0.1	0.0	2.1	0.1
PED Distribution Check	07-Jul-2011															
Post Biomass Growth	01-Aug-2011															
		0	0													
Main Recirc Wk1	12-Aug-2011	3	7.1	0.39	0.47	0.00	0.00	0.00	0.13	0.4	0.5	0.0	0.0	0.0	0.9	0.1
Main Recirc Wk2	18-Aug-2011	9	15.1	0.41	0.40	0.00	0.02	0.01	0.39	0.8	0.9	0.0	0.0	0.0	1.7	0.5
Main Recirc Wk3	24-Aug-2011	15	22.9	0.36	0.26	0.00	0.06	0.01	0.62	1.2	1.1	0.0	0.1	0.0	2.4	1.1
Main Recirc Wk4	31-Aug-2011	22	30.1	0.25	0.20	0.00	0.07	0.02	0.76	1.4	1.3	0.0	0.2	0.0	2.9	1.9
Main Recirc Wk6	15-Sep-2011	37	50.3	0.56	0.58	0.00	0.28	0.07	2.26	2.0	1.9	0.0	0.4	0.1	4.4	4.2
Main Recirc Wk8	28-Sep-2011	50	67.0	0.50	0.64	0.00	0.36	0.06	1.65	2.5	2.6	0.0	0.8	0.2	6.0	5.8
Main Recirc Wk10	13-Oct-2011	65	84.9	0.62	0.84	0.01	0.56	0.12	1.85	3.1	3.4	0.0	1.4	0.3	8.1	7.7
Main Recirc Wk12	26-Oct-2011	79	101.7	0.77	0.98	0.01	0.63	0.19	1.70	3.9	4.4	0.0	2.0	0.5	10.7	9.4
Main Recirc Wk14	10-Nov-2011	93	116.7	0.84	1.08	0.01	0.57	0.24	1.50	4.7	5.5	0.0	2.6	0.7	13.5	10.9
Main Recirc Wk16	22-Nov-2011	105	131.8	0.67	1.06	0.01	0.56	0.34	1.60	5.4	6.5	0.0	3.1	1.0	16.1	12.5
Main Recirc Wk19	15-Dec-2011	128	155.6	0.89	1.82	0.01	1.01	0.74	2.95	6.3	8.3	0.1	4.1	1.8	20.6	15.4
Main Recirc Wk22	05-Jan-2012	149	178.2	0.84	1.63	0.01	0.94	0.90	3.38	7.1	10.0	0.1	5.1	2.7	24.9	18.8
Main Recirc Wk25	26-Jan-2012	170	202.2	0.71	1.46	0.02	1.14	1.12	3.30	7.8	11.4	0.1	6.2	3.8	29.3	22.1
Main Recirc Wk28	14-Feb-2012	189	221.6	0.42	1.06	0.01	0.98	1.07	2.29	8.2	12.5	0.1	7.2	4.9	32.9	24.4
IM Recirc Wk32	15-Mar-2012	219	255.5	0.58	1.45	0.02	1.61	1.03	2.04	8.8	13.9	0.1	8.8	5.9	37.6	26.4
IM Recirc Wk37	19-Apr-2012	254	305.5	0.66	1.92	0.03	3.03	0.00	0.00	9.5	15.9	0.1	11.8	5.9	43.2	26.4
IM Recirc Wk41	17-May-2012	282	341.9	0.31	1.54	0.02	2.17	0.00	0.00	9.8	17.4	0.2	14.0	5.9	47.3	26.4
IM Recirc Wk47	26-Jun-2012	322	380.3	0.51	1.70	0.03	2.16	2.36	2.81	10.3	19.1	0.2	16.2	8.3	54.0	29.2
IM Recirc Wk50	19-Jul-2012	345	401.6	0.33	0.67	0.02	1.20	1.31	1.56	10.6	19.8	0.2	17.4	9.6	57.5	30.8
IM Recirc Wk54	16-Aug-2012	373	438.0	0.48	0.95	0.03	1.62	0.00	0.00	11.1	20.7	0.2	19.0	9.6	60.6	30.8
IM Recirc Wk58	13-Sep-2012	401	468.4	0.23	0.86	0.02	1.21	1.93	2.73	11.3	21.6	0.3	20.2	11.5	64.9	33.5
					Mass removed, Baseline Flux weeks 1 - 4 (kg):					0.2	0.1	0.0	0.0	0.0	0.2	0.0
					Mass removed, weeks 1 - 28 (kg):					1.1	1.2	0.0	0.4	0.1	2.9	0.4
					Mass removed, weeks 29 - 58 (kg):					0.4	0.9	0.0	0.8	0.2	2.3	0.1
					Mass removed, weeks 1 - 58 (kg):					1.5	2.1	0.0	1.3	0.3	5.2	0.5

Notes:

kgal - kilogallons

kg - kilograms

TVOCs - total volatile organic compounds

Table E-5-10. RW0008 Carbon in TOC and VFAs (Molar Equivalents)

		Concentration (mg/L)				Molar Equivalents Carbon (mmol C/L)							
Event	**Sample Date**	**TOC**	**Acetic Acid**	**Butanoic Acid**	**Propionic Acid**	**TOC**	**Acetic Acid**	**Butanoic Acid**	**Propionic Acid**	**Sum VFAs**	**nBA**	**nBuOH**	**Sum VOCs**
Baseline Flux Week 1	22-Mar-2011	3.6	0.073	0.56	0.13	0.30	0.00	0.03	0.01	0.03	0	0	0.03
Baseline Flux Week 2	28-Mar-2011	3.5	0.073	0.56	0.13	0.29	0.00	0.03	0.01	0.03	0	0	0.02
Baseline Flux Week 3	07-Apr-2011	3.5	0.073	0.56	0.13	0.29	0.00	0.03	0.01	0.03	0	0	0.02
Baseline Flux Week 4	19-Apr-2011	3.4	1	0.56	0.13	0.28	0.03	0.03	0.01	0.06	0	0	0.03
Post Biomass Growth	01-Aug-2011	73.1	130	28	1.1	6.09	4.33	1.27	0.04	5.65	0	0	0.11
Main Recirc Wk1	12-Aug-2011	203	220	150	5.5	16.92	7.33	6.81	0.22	14.36	0.42	6.48	6.97
Main Recirc Wk2	18-Aug-2011	177	230	150	12	14.75	7.66	6.81	0.49	14.96	0	0.50	0.57
Main Recirc Wk3	24-Aug-2011	147	220	100	15	12.25	7.33	4.54	0.61	12.47	0	0	0.08
Main Recirc Wk4	31-Aug-2011	122	210	72	15	10.17	6.99	3.27	0.61	10.87	0	0	0.07
Main Recirc Wk6	15-Sep-2011	80	140	34	5.1	6.67	4.66	1.54	0.21	6.41	0	0	0.08
Main Recirc Wk8	28-Sep-2011	64	140	12	2.2	5.33	4.66	0.54	0.09	5.30	0	0	0.09
Main Recirc Wk10	13-Oct-2011	61	130	16	1.8	5.08	4.33	0.73	0.07	5.13	0	0	0.11
Main Recirc Wk12	26-Oct-2011	65	130	19	1.4	5.42	4.33	0.86	0.06	5.25	0	0	0.13
Main Recirc Wk14	10-Nov-2011	59.2	120	22	1.4	4.93	4.00	1.00	0.06	5.05	0	0	0.15
Main Recirc Wk16	22-Nov-2011	56	120	18	1.6	4.67	4.00	0.82	0.06	4.88	0	0	0.12
Main Recirc Wk19	15-Dec-2011	56.3	120	13	1.6	4.69	4.00	0.59	0.06	4.65	0	0	0.17
Main Recirc Wk22	05-Jan-2012	50.9	96	8.5	1.4	4.24	3.20	0.39	0.06	3.64	0	0	0.14
Main Recirc Wk25	26-Jan-2012	48.3	100	7.1	1.2	4.03	3.33	0.32	0.05	3.70	0	0	0.16
Main Recirc Wk28	14-Feb-2012	43.5	91	4.8	1.2	3.63	3.03	0.22	0.05	3.30	0	0	0.13
IM Recirc Wk47	26-Jun-2012	37.1	na	na	na	3.09	na	na	na	0.00	0	0	0.17
IM Recirc Wk58	13-Sep-2012	27	na	na	na	2.25	na	na	na	0.00	0	0	0.16

Notes:

* no VFA analysis

mg/L - milligrams per liter

mmol C/L - millimole equivalents of carbon per liter

na - not analyzed/not available

Table E-5-10. RW0008 Carbon in TOC and VFAs (Molar Equivalents)

		Ratios			VFAs - Percentage of Total VFAs			VFAs - Percentage of TOC		
Event	**Sample Date**	**VFAs+VOCs**	**(VFAs+VOCs)/TOC**	**VFAs/TOC**	**Acetic:Total**	**Butanoic:Total**	**Propionic:Total**	**Acetic:TOC**	**Butanoic:TOC**	**Propionic:TOC**
Baseline Flux Week 1	22-Mar-2011	0.07	0.22	0.11	0.073	0.768	0.159	0.008	0.085	0.018
Baseline Flux Week 2	28-Mar-2011	0.05	0.19	0.11	0.073	0.768	0.159	0.008	0.087	0.018
Baseline Flux Week 3	07-Apr-2011	0.05	0.19	0.11	0.073	0.768	0.159	0.008	0.087	0.018
Baseline Flux Week 4	19-Apr-2011	0.10	0.34	0.23	0.520	0.397	0.082	0.118	0.090	0.019
Post Biomass Growth	01-Aug-2011	5.75	0.94	0.93	0.767	0.225	0.008	0.711	0.209	0.007
Main Recirc Wk1	12-Aug-2011	21.33	1.26	0.85	0.510	0.474	0.016	0.433	0.403	0.013
Main Recirc Wk2	18-Aug-2011	15.53	1.05	1.01	0.512	0.455	0.032	0.519	0.462	0.033
Main Recirc Wk3	24-Aug-2011	12.55	1.02	1.02	0.587	0.364	0.049	0.598	0.371	0.050
Main Recirc Wk4	31-Aug-2011	10.94	1.08	1.07	0.643	0.301	0.056	0.688	0.322	0.060
Main Recirc Wk6	15-Sep-2011	6.49	0.97	0.96	0.727	0.241	0.032	0.699	0.232	0.031
Main Recirc Wk8	28-Sep-2011	5.38	1.01	0.99	0.880	0.103	0.017	0.874	0.102	0.017
Main Recirc Wk10	13-Oct-2011	5.24	1.03	1.01	0.844	0.142	0.014	0.852	0.143	0.014
Main Recirc Wk12	26-Oct-2011	5.38	0.99	0.97	0.825	0.164	0.011	0.799	0.159	0.010
Main Recirc Wk14	10-Nov-2011	5.20	1.05	1.02	0.791	0.198	0.011	0.810	0.202	0.011
Main Recirc Wk16	22-Nov-2011	5.00	1.07	1.05	0.819	0.168	0.013	0.856	0.175	0.014
Main Recirc Wk19	15-Dec-2011	4.82	1.03	0.99	0.859	0.127	0.014	0.852	0.126	0.014
Main Recirc Wk22	05-Jan-2012	3.78	0.89	0.86	0.878	0.106	0.016	0.754	0.091	0.013
Main Recirc Wk25	26-Jan-2012	3.86	0.96	0.92	0.900	0.087	0.013	0.827	0.080	0.012
Main Recirc Wk28	14-Feb-2012	3.42	0.94	0.91	0.919	0.066	0.015	0.836	0.060	0.013
IM Recirc Wk47	26-Jun-2012	0.17	na	na	na	na	na	na	na	na
IM Recirc Wk58	13-Sep-2012	0.16	na	na	na	na	na	na	na	na

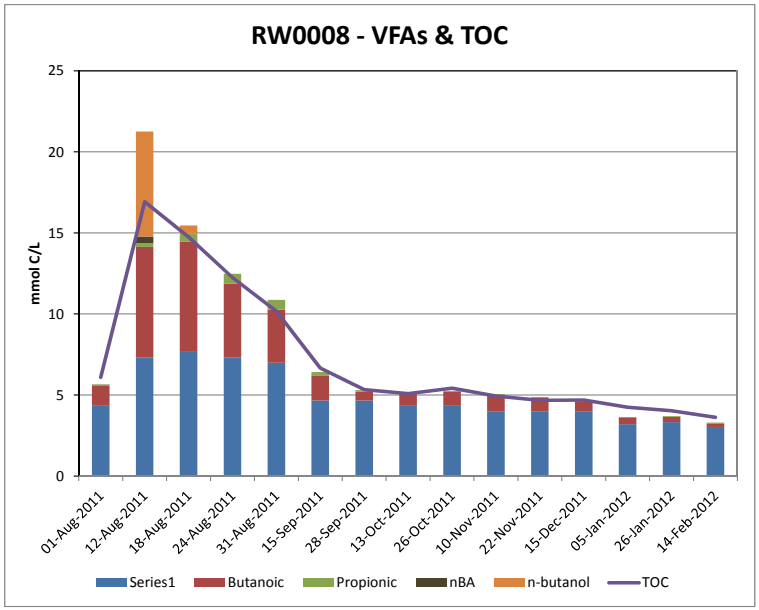


Figure E-5-1. RW0007 Cumulative VOCs Extracted

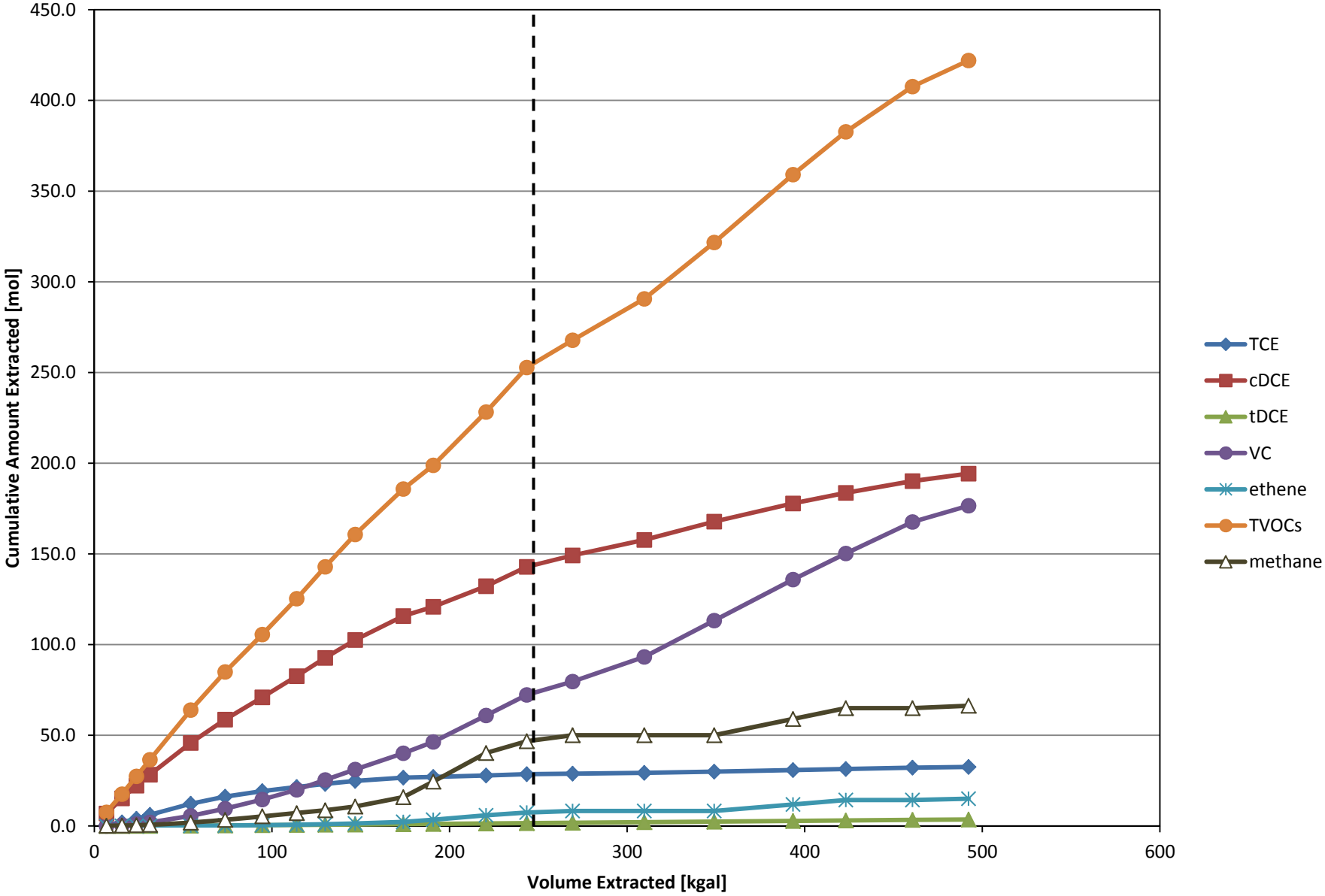
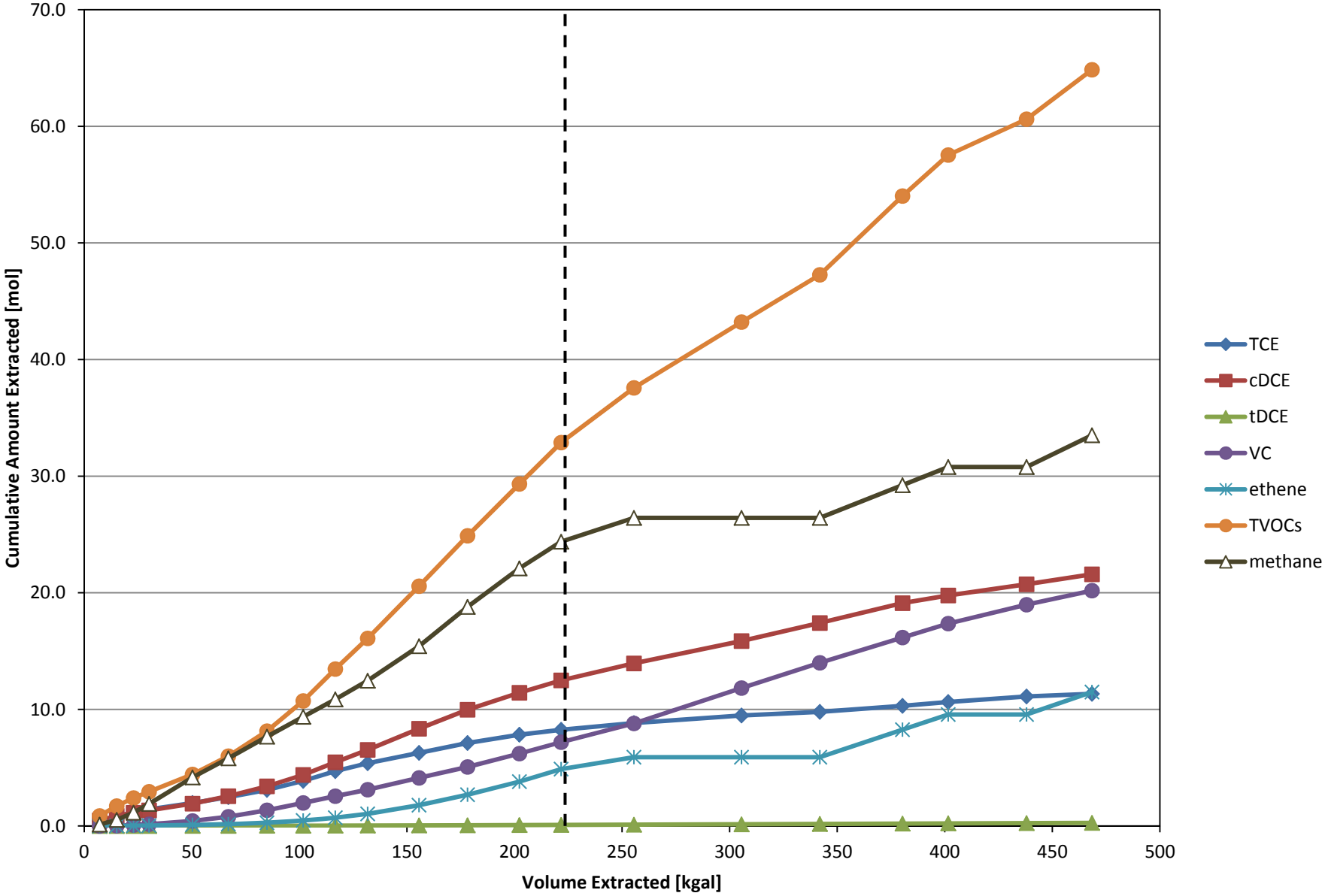


Figure E-5-2. RW0008 Cumulative VOCs Extracted



ATTACHMENT E-6

TREATMENT ZONE VOC MASS ESTIMATES

Table E-6-1 Estimates of VOC Mass in the Treatment Zone over the Operation of the DEM/VAL

Figure E-6-1 Treatment Zone TVOC Mass Estimates over Operation of the DEM/VAL

Table E-6-1. Estimates of VOC Mass in the Treatment Zone over the Operation of the DEM/VAL

	Date	Area (ft^2)	Depth (ft)	Volume (ft^3)	Concentration (µg/L)			Dissolved Mass (kg)				Total Mass (Dissolved & Sorbed) (kg)			
					TCE	cis-1,2-DCE	VC	TCE	cis-1,2-DCE	VC	Total VOCs	TCE	cis-1,2-DCE	VC	Total VOCs
Upper Unit (A, B, and C screened intervals)	Apr-2011	3,469	22	76,318	6,226	35,833	2,814	4.0	23.2	1.8	29.1	7.7	27.8	2.0	37.5
	Aug-2011	3,469	22	76,318	4,355	25,517	3,734	2.8	16.5	2.4	21.8	5.4	19.8	2.7	27.8
	Oct-2011	3,469	22	76,318	1,687	26,733	3,240	1.1	17.3	2.1	20.5	2.1	20.7	2.3	25.1
	Feb-2012	3,469	22	76,318	290	14,582	4,172	0.2	9.4	2.7	12.3	0.4	11.3	3.0	14.6
	Jun-2012	3,469	22	76,318	167	10,886	3,539	0.1	7.1	2.3	9.5	0.2	8.4	2.5	11.2
	Sep-2012	3,469	22	76,318	60	6,393	2,064	0.0	4.1	1.3	5.5	0.1	5.0	1.5	6.5
Middle Units (D screened interval)	Apr-2011	3,469	6	20,814	60,229	6,800	270	10.6	1.2	0.0	11.9	35.8	1.8	0.1	37.7
	Aug-2011	3,469	6	20,814	40,381	6,867	747	7.1	1.2	0.1	8.5	24.0	1.8	0.2	26.0
	Oct-2011	3,469	6	20,814	50,042	7,500	1,933	8.8	1.3	0.3	10.5	29.8	2.0	0.4	32.2
	Feb-2012	3,469	6	20,814	36,686	7,100	3,133	6.5	1.3	0.6	8.3	21.8	1.9	0.7	24.4
	Jun-2012	3,469	6	20,814	21,333	4,287	5,663	3.8	0.8	1.0	5.5	12.7	1.1	1.3	15.1
	Sep-2012	3,469	6	20,814	14,333	4,042	4,230	2.5	0.7	0.7	4.0	8.5	1.1	0.9	10.5
Lower Unit (E and F screened intervals)	Apr-2011	3,469	14	48,566	188	89	12	0.1	0.0	0.0	0.1	0.13	0.04	0.01	0.2
	Aug-2011	3,469	14	48,566	6	414	438	0.0	0.2	0.2	0.4	0.00	0.20	0.20	0.4
	Oct-2011	3,469	14	48,566	267	303	151	0.1	0.1	0.1	0.3	0.19	0.14	0.07	0.4
	Feb-2012	3,469	14	48,566	73	171	382	0.0	0.1	0.2	0.3	0.05	0.08	0.17	0.3
	Jun-2012	3,469	14	48,566	81	132	481	0.0	0.1	0.2	0.3	0.06	0.06	0.21	0.3
	Sep-2012	3,469	14	48,566	9	115	406	0.0	0.0	0.2	0.2	0.01	0.05	0.18	0.2

Estimated Mass in Plume [kg]

	TCE	cis-1,2-DCE	VC	Total VOCs	% Remain	% Removed
Apr-2011	14.8	24.5	1.9	**41.1**	--	--
Aug-2011	10.0	17.9	2.7	**30.6**	**74%**	**26%**
Oct-2011	10.0	18.8	2.5	**31.3**	**76%**	**24%**
Feb-2012	6.7	10.8	3.4	**20.9**	**51%**	**49%**
Jun-2012	3.9	7.9	3.5	**15.3**	**37%**	**63%**
Sep-2012	2.6	4.9	2.3	**9.7**	**24%**	**76%**

Estimated Mass in Plume [kg], with Retardation

	TCE	cis-1,2-DCE	VC	Total VOCs	% Remain	% Removed
Apr-2011	43.7	29.6	2.1	**75.3**	--	--
Aug-2011	29.4	21.8	3.0	**54.2**	**72%**	**28%**
Oct-2011	32.0	22.8	2.8	**57.7**	**77%**	**23%**
Feb-2012	22.2	13.3	3.9	**39.3**	**52%**	**48%**
Jun-2012	13.0	9.6	4.0	**26.6**	**35%**	**65%**
Sep-2012	8.6	6.1	2.6	**17.3**	**23%**	**77%**

Estimated Mass Removed [kg]

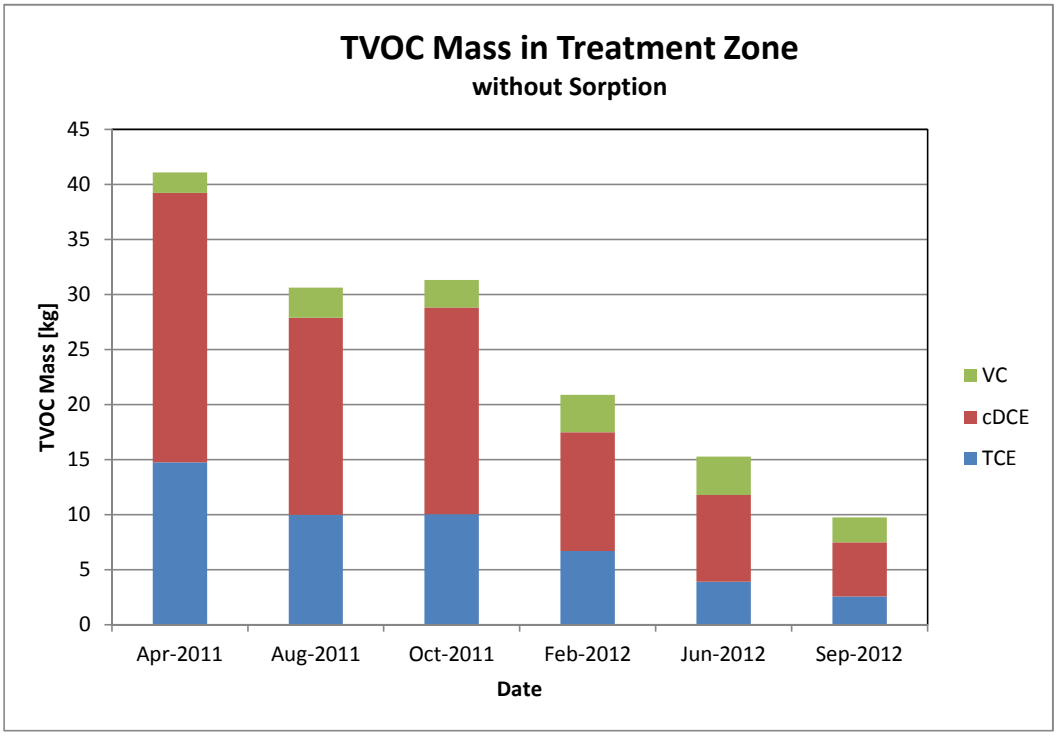
	TCE	cis-1,2-DCE	VC	Total VOCs
Apr-2011	0.0	0.0	0.0	**0.0**
Aug-2011	4.8	6.5	-0.9	**10.5**
Oct-2011	4.7	5.7	-0.6	**9.8**
Feb-2012	8.1	13.7	-1.5	**20.2**
Jun-2012	10.8	16.6	-1.6	**25.8**
Sep-2012	12.2	19.6	-0.4	**31.4**

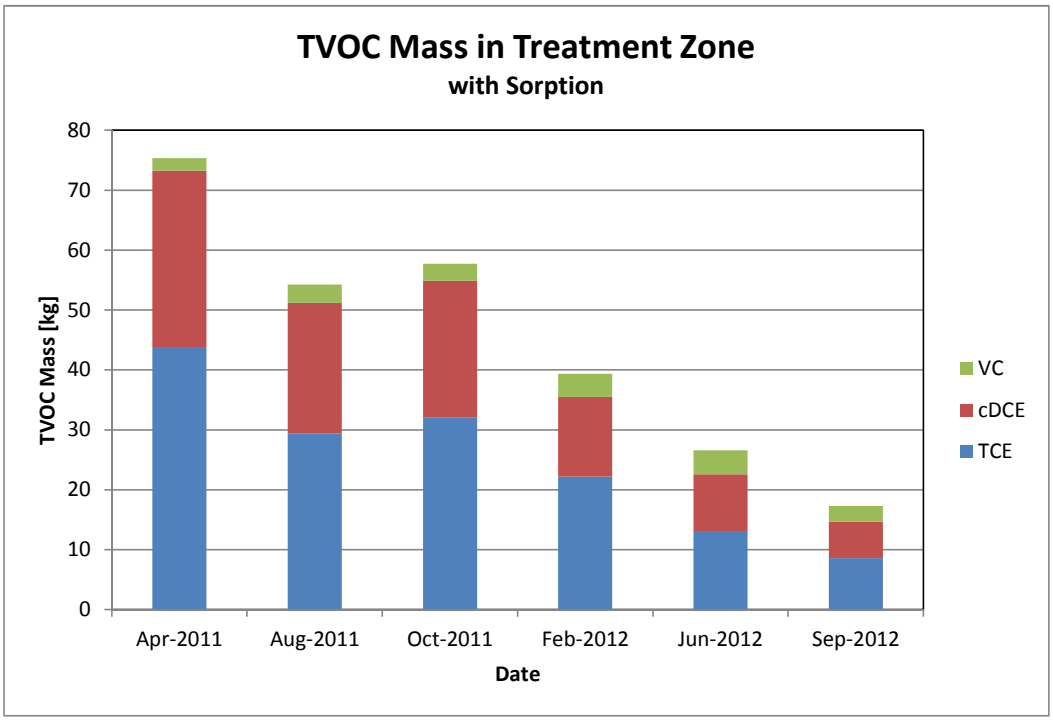
Estimated Mass Removed [kg], with Retardation

	TCE	cis-1,2-DCE	VC	Total VOCs	Ratio vs No Sorption
Apr-2011	0.0	0.0	0.0	**0.0**	--
Aug-2011	14.3	7.8	-1.0	**21.1**	2.0
Oct-2011	11.6	6.8	-0.7	**17.6**	1.8
Feb-2012	21.4	16.3	-1.8	**36.0**	1.8
Jun-2012	30.7	20.0	-1.9	**48.8**	1.9
Sep-2012	35.1	23.5	-0.5	**58.1**	1.9

	Foc (--)	Bulk Density (g/mL)	Porosity (--)	Retardation Coefficient [R]			
				TCE	cis-1,2-DCE	VC	CFC113
Upper Sand	0.0010	1.65	0.30	1.91	1.20	1.10	3.05
Middle Clay	0.0029	1.50	0.30	3.37	1.51	1.27	6.30
Lower Sand	0.0008	1.65	0.30	1.73	1.16	1.08	2.64
Koc (mL/g)				166	35.5	18.6	372

Figure E-6-1. Treatment Zone TVOC Mass Estimates over Operation of the DEM/VAL





Notes:

1. TVOC mass is estimated as the sum of TCE, cDCE and VC (i.e., does not include CFC113).
2. Mass of each VOC in the treatment zone plume is the sum of the estimated mass in each zone (upper, middle and lower). VOC mass in each zone is estimated using the average VOC concentrations at all monitoring locations in that zone and the volume of groundwater in the zone.
3. TVOC mass with sorption is estimated using compound-specific retardation coefficients for each zone.

APPENDIX F

SAMPLE QA/QC

APPENDIX F

SUMMARY OF SAMPLE QA/QC

F.1 CALIBRATION OF ANALYTICAL EQUIPMENT

All analytical instruments were calibrated by the laboratory as required by the standard USEPA methods or the instrument manufacturer's directions. Calibration verification was conducted at least once per day or for each analytical run. Calibration checks using known standard solutions of the analyte of interest were run as necessary during the day and at the end of each sampling session.

Calibration of field equipment was conducted prior to use. At the beginning of each day that measurements were to be taken, field equipment was calibrated according to the manufacturer's instructions using commercially-prepared standard solutions. Calibration verification was re-checked at the end of the day. All instrument calibration information was recorded in the field records.

F.2 QUALITY ASSURANCE SAMPLING

F.2.1 FIELD QUALITY CONTROL

Quality control (QC) procedures for pH, conductivity, DO, ORP, turbidity and temperature measurements were limited to checking the reproducibility of the measurement by obtaining multiple readings (minimum of 3) on a single sample and by calibrating the instruments according to the manufacturers' specifications.

Field sampling procedures included the preparation and submittal of two types of QC samples from the field and were submitted to the lab as "blind" samples in order not to bias the results:

- **Trip Blank:** One trip blank for every cooler containing samples for VOC analyses was prepared with deionized water, preserved to a pH less than 2 pH units using hydrochloric acid, transported to the site, handled like a sample, and submitted to the laboratory for VOC analysis. Exceptions to this were occasionally made for times when only the two extraction wells were being sampled.

- **Field Duplicates:** Two sets of samples from a source were prepared, labeled with unique sample numbers, and submitted to the laboratory without identifying the samples as duplicates (i.e., without indicating which investigative sample the duplicate represents). Field duplicates were collected as sequential samples; to minimize analyte mass loss, particularly of VOCs, homogenization was not conducted with either water or soil samples. Blind duplicates were collected and analyzed for groundwater samples but not for soil samples due to the inherent difficulty of obtaining identical material. The target

frequency of field duplicate collection was one blind duplicate for every 20 environmental samples collected, for all selected analytes. In practice, this frequency was met or exceeded for all analytes except for the tracer compounds bromide and iodide, for which the achieved frequency was one in 33 (3%).

The results of the analyses of these QC samples were used as independent, external checks on laboratory and field contamination as well as the precision of analyses.

No field blanks or equipment blanks were collected. These samples were considered unnecessary since dedicated sample tubing was used at each monitoring location.

F.2.1.1 Field Quality Control Sample Results

No analytes were detected in any of the trip blanks, indicating there was no cross-contamination during sample storage and transport.

The relative percent difference (RPD; refer to Section 2.4.1 below) for all field duplicates for various analytes are presented in Table F-1. For the majority of analytes, the RPD between field duplicates and parent samples was acceptable (RPD $\leq$ 30%). For VOC analyses, 11% to 37% of the field duplicates had RPDs greater than 30% for the analytes of interest (i.e. 2 to 7 samples out of the 19 field duplicates analyzed, considering TCE, cDCE, tDCE, VC, CFC-113, nBA and n-Butanol). Of the instances where the RPD exceeded 30%, nearly half involved an estimated result for the primary sample, the duplicate, or both. When these instances are discounted, the number of duplicates with RPDs exceeding target was 1 to 5 of the 19 analyzed, depending on which analyte is considered. For the non-VOC analyses, all RPDs were within target with the exception of one chloride result. Although in a few cases the RPD was higher than the target RPD, the results are still considered usable for the purposes of this study and the reported values represent estimated concentrations.

F.2.2 LABORATORY QUALITY CONTROL

Samples were analysed by certified contract laboratories. Laboratory Quality Control samples were routinely analyzed as part of their standard operating procedures. These samples consisted of method blanks, matrix spikes (and matrix spike duplicates), and surrogate and laboratory control samples.

Laboratory QA/QC data did not indicate any major data quality issues. For the majority of cases, there were no detections in method blanks, hold times were met, and LCS/LCSD and MS/MSD recoveries and RPDs were within target ranges. In cases where laboratory QA/QC data were outside of data quality targets, the results are considered usable for the purposes of the study and the reported values represent estimated concentrations.

F.2.2.1 Method Blanks

A method (or preparation) blank was prepared at the frequency specified by the referenced method (typically one per analytical batch). The purpose of the method blank is to ensure that contaminants are not introduced by the glassware, reagents, standards, personnel, or the sample preparation environment.

For volatile analyses, an instrument blank was also analyzed during each calibration shift to verify that contaminants are not being introduced by components of the instrumentation or analytical laboratory.

The laboratory has various routine QC checks in place to verify that new lots of glassware, reagents and standards, decontaminated glassware, sample storage areas (including refrigerators), and water purification systems are contaminant-free.

F.2.2.2 Matrix Spikes and Matrix Spike Duplicates

A matrix spike (MS) is a second, extra aliquot of an environmental sample to which known concentrations of target analytes have been added. The MS is carried through the entire analytical procedure, and the recovery of the analytes is calculated. Results are expressed as percent recovery. The MS is used to evaluate the effect of the sample matrix on the accuracy of the analysis.

A matrix spike duplicate (MSD) is a third, extra aliquot of an environmental sample that is also spiked with the same, known concentrations of analytes used for the MS. The two spiked aliquots are processed separately, and the results are compared to determine the effects of the matrix on the precision and accuracy of the analysis. Results are expressed as relative percent difference (RPD) and percent recovery.

One MS/MSD set was analyzed for every set of investigative samples, for the volatile organic analyses (i.e., VOCs, VFAs and DHGs). The MS/MSD was site-specific and, therefore, field personnel were responsible for collecting additional sample volumes to account for the MS/MSD samples. Similarly, for the other investigative samples collected for inorganic parameter analyses (i.e., tracers, anions, sulfide, alkalinity, dissolved metals, and TOC), laboratory QC involved an MS sample and a duplicate sample to assess the reproducibility (RPD).

F.2.2.3 Surrogate and Laboratory Control Sample Recovery

Surrogate standards were added to each organic sample requiring gas chromatography/mass spectrometer (GC/MS) analysis for VOCs in accordance with the particular method being utilized. In some instances the sample matrix may produce interferences that adversely affect recoveries. Surrogate recoveries were monitored to ensure that they met method acceptance criteria. In addition, laboratory control samples (LCSs) are fortified with spike standard solutions containing target parameters of interest. The recovery of these standards was

quantitatively measured during analysis, and historical records maintained on the percent recovery for each sample.

F.2.3 QUALITY ASSURANCE OBJECTIVES

The data quality indicators (DQIs) for this project were precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). The quality assurance (QA) program addressed both field and laboratory activities. QA objectives for measurement data are expressed in terms of PARCCS. The field QA/QC program was accomplished through the collection of field duplicates and trip blanks. The analytical QA/QC program was assessed through the internal laboratory QC performed, including method blanks, LCS recoveries, surrogate recoveries, and matrix spike/matrix spike duplicate (MS/MSD) recoveries. Data quality acceptance criteria are presented below.

F.2.3.1 Precision

Precision quantifies the repeatability of a given measurement. Precision was determined through the collection of field duplicates and the analysis of MS/MSD samples. Sampling precision was measured through the laboratory analysis of field duplicate samples. Laboratory precision was measured through the analysis of MS/MSD samples, laboratory duplicate samples and laboratory control sample/laboratory control sample duplicates (LCS/LCSD). During the collection of field parameter data, precision was checked by reporting several measurements taken at one location and comparing the results.

Precision was evaluated on the basis of the relative percent difference between duplicate samples for a given analyte. RPD is calculated as follows:

$$RPD(\%) = \frac{C_1 - C_2}{(C_1 + C_2)/2} \; x\,100$$

where: RPD is relative percent difference, and
C_1 and C_2 are the results of replicate analyses.

A precision goal of RPD ≤ 30% was set for field duplicates for all analytes. For laboratory precision, the precision goal was 30% for organic analytes and 20% for other analytes.

F.2.3.2 Accuracy

Accuracy refers to the degree of difference between measured or calculated values and the true value. Accuracy was evaluated in terms of the percentage of a known amount of analyte or matrix spike recovered from a given matrix. Percent recovery for an analyte was calculated by:

$$\%\,R = \left(\frac{S - U}{C_{sa}}\right) \times 100$$

where: %R = percent recovery
S = measured concentration in spiked aliquot
U = measured concentration in unspiked aliquot
C_{sa} = actual concentration of spike added.

Accuracy was determined by the percentage of analyte recovered (%R) from the matrix spikes. Matrix spikes for laboratory analyses were prepared by injecting a known mass of a standard solution containing all of the analytes of interest into a groundwater sample, then analyzing the spiked sample according to the appropriate methods. Acceptable ranges for each analyte were as determined by the contract laboratory standard procedure.

The accuracy of field procedures is difficult to assess quantitatively. However, sampling accuracy was maximized by following standard protocols. Equipment and instrumentation was properly calibrated and well-maintained. Trip blanks were included in each sample batch to provide representative data to assess the potential for cross-contamination.

F.2.3.3 Representativeness

Representativeness is the degree to which a sample or group of samples accurately and precisely represents the population being studied. Over the course of this DEM/VAL study, samples were collected in a manner such that they represent both the chemical composition and the physical state of the sample in the groundwater at the time of sampling. Groundwater samples were not collected until field parameter measurements of the purged water had stabilized (generally within the following limits: temperature ± 0.2 °C, pH ± 0.2 standard units, specific conductance ± 5% of reading, DO ± 0.2 mg/L or 10%, whichever was greater, and turbidity ± 5 NTU or 10%, whichever was greater). The sample collection protocol minimized contact with the atmosphere to minimize volatilization.

F.2.3.4 Completeness

Completeness refers to the percentage of valid data received based on completed analysis performed in the laboratory, and is calculated by:

$$\%\,C = \left(\frac{V}{T}\right) \times 100$$

where: %C = percent completeness
V = number of measurements judged valid
T = total number of measurements

The completeness goal was to generate sufficient usable data to assess the technology performance. This was achieved, since all measurements were judged valid and no data were rejected.

F.2.3.5 Comparability

Comparability is the degree to which one data set can be compared to another. To optimize comparability, EPA established methods and approved protocols were selected or specified as appropriate for this DEM/VAL. To ensure comparability, samples were collected at specified intervals and in a similar manner, and were analyzed within required holding times by accepted methods.

F.2.3.6 Sensitivity

Sensitivity refers to the minimum magnitude at which analytical methods can resolve quantitative differences among sample concentrations. The sensitivity of an analytical method is expressed as the method detection limit (MDL), a theoretical concentration limit determined through an MDL study, in which the concentration of a spiked solution is tested at least 7 times. The standard deviation of the recovered concentrations (σ_{rec}) is computed and multiplied by the Student's t-distribution value to arrive at the MDL. In practice, to allow for matrix interferences and variability in instrument control, a reporting limit of 2.5 to 5 times the MDL is typically selected.

The MDL for all measurements is calculated according to:

$$MDL = t_{(n-1,1-\alpha=0.99)} \times s$$

where: s = standard deviation of replicate analyses of matrix spikes with concentrations near the MDL

$t\,(n\text{-}1,\ 1\text{-}\alpha = 0.99)$ = Students' t value for a one-sided, 99% confidence level and a standard deviation estimate with n-1 degrees of freedom.

F.3 DECONTAMINATION PROCEDURES

All sampling and field equipment received routine testing, inspection and maintenance checks to minimize equipment breakdown and ensure proper function. Routine daily maintenance conducted in the field included:

- Remove surface dirt and debris from the exposed surfaces of all equipment;
- Store equipment away from the elements;
- Inspect equipment and instruments for possible problems daily, including cracked or clogged lines or tubing, weak batteries, and worn pump heads; and

- Charge any equipment battery packs when not in use.

Cleaning of non-dedicated and non-disposable field sampling and measuring equipment and personal protective equipment (PPE) was performed to minimize the potential for cross-contamination between sample locations and samples, and to minimize the potential for exposure of workers to Site-related chemicals. All sampling devices and reusable PPE were decontaminated immediately after each use with direct application of a phosphate-free soap solution (i.e. Alconox™), followed by rinsing with distilled water. Expended decontamination fluids were containerized by the sampling personnel for disposal by NASA. Non-reusable sampling equipment, gloves, and tubing were disposed of appropriately following each sampling event.

F.4 SAMPLE DOCUMENTATION

Data management involved maintaining and controlling field data, laboratory analytical data, and any other data relevant to the project. Field data was recorded on designated forms or logs. Data entries included date and time. Sample collection data as well as visual observations were documented on specific forms and/or daily field notes. The sample collection equipment and field instruments were identified in the field documentation. Calculations, results, equipment usage, maintenance, repair and calibration data for field sampling, and field analytical and field physical measurement equipment was also recorded in field documentation. Once completed, the field forms were incorporated into the project file.

Sample collection and sample custody procedures were designed to ensure that custody of field samples was maintained and documented. These procedures provide identification and documentation of the sampling event and the sample chain-of-custody from shipment of sample bottleware, through sample collection, to receipt of the sample by the subcontracted laboratory. When used in conjunction with the laboratory's custody procedures and the sample bottleware documentation, these data establish full legal custody and allow complete tracking of a sample from preparation and receipt of sample bottleware to sample collection, preservation, and shipping through laboratory receipt, sample analysis and data validation.

A sample was in custody if:

- it was in the field investigator's, transferee's, or lab technician's actual possession; or
- it was the field investigator's, transferee's, or lab technician's view, after being in his/her physical possession; or
- it was in the field investigator's, transferee's, or lab technician's physical possession and then he/she secured it to prevent tampering; or
- it was placed in a designated secure area.

Prior to each sample collection event, each sample container had a self-adhesive, non-removable sample label affixed. As samples were collected, all sample containers were labeled with an

identification number that uniquely identified the sample. The sample identification number was logged in the field forms along with the following information about the sampling event:

1. Sampling personnel
2. Date and time of collection
3. Field sample location and depth (if appropriate)
4. Observations on ambient conditions
5. Type of sample (composite or grab)
6. Method of sampling
7. Sampling matrix or source
8. Results of field screening
9. Intended analyses

Sample labels contained the following information:

- Site name;
- Project number;
- A unique sample identification number;
- Date and time of sample collection;
- Analysis to be performed; and
- Preservation chemical (if applicable).

Sample identifiers (IDs) consisted of the sample location name and sample collection depth (as appropriate), as well as the date of sample collection. Field duplicate samples required special procedures for sample designation to ensure that they were submitted blindly to the laboratory. A fictitious sample ID and time was used on the submitted sample, with both the fictitious and actual information documented in the standard field forms.

All samples were stored in an insulated cooler containing ice packs or ice sealed in a plastic bag. Samples selected for laboratory analysis were transferred to insulated coolers for overnight shipment to the laboratory. Each cooler was packed in a manner that prevented damage to sample containers during shipment and contained a sufficient amount of ice or ice packs to ensure that the temperature was maintained between approximately 0ºC and 4ºC.

A Chain-of-Custody Record (COC) accompanied each cooler and was used to trace the possession and handling of all samples, from their collection, through analysis, until their final disposition. The Chain-of-Custody Record documented the names of the relinquishing and receiving parties, the time and date of the transfer of custody, and the reason for the transfer of custody. One COC accompanied each cooler shipped to the laboratory. The form was placed in a sealed plastic bag inside the cooler, typically taped to the inside lid of the cooler. Following packing, the cooler lid was sealed with strapping tape. A custody seal was signed, dated and affixed from the cooler lid to the cooler body and was additionally covered with clear tape; thus ensuring that tampering with the cooler contents would be immediately evident. The sample

coolers were typically shipped by overnight express courier to the laboratory. A copy of the COC and bill of lading were retained. Each sample shipment was tracked via the courier waybill number to ensure that prompt delivery of the shipment to the laboratory occurred.

TABLE F-1
RELATIVE PERCENT DIFFERENCE IN FIELD DUPLICATES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Depth Interval (ft BLS)	Parent Sample ID	Field Duplicate Sample ID	Parameter	Units	Parent Sample Result	Field Duplicate Sample Result	RPD
LC34-BW0003E	22-Mar-11	51 - 54	LC34-BW0003E-052.5-20110322	LC34-FD-20110322-01	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	0.4 U	0.4 U	NC
LC34-RW0007	28-Mar-11	35.25 - 41.85	LC34-RW0007-038.5-20110328	LC34-FD-20110328-01	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**8200**	**7100**	**14.4**
LC34-IW0002D	7-Apr-11	35 - 40	LC34-IW0002D-037.5-20110407	LC34-FD-20110407-01	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**6500**	**11000**	**51.4**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-01	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**11000**	**9800**	**11.5**
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-10	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	10 U	10 U	NC
LC34-BW0002F	19-Apr-11	58 - 61	LC34-BW0002F-059.5-20110419	LC34-FD-20110419-13	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	0.4 U	0.4 U	NC
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-BW0003B-031.5-20110419-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**96 I**	**220 I**	**78.5**
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-BW0003D-045.5-20110419-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	20 U	20 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**8500**	**8700**	**2.3**
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-RW0008-052.0-20110419-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**160**	**180**	**11.8**
LC34-BW0001A	1-Aug-11	23 - 26	LC34-BW0001A-024.5-20110801	LC34-FD-20110801-04	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**87000**	**120000**	**31.9**
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-FD-20110801-05	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**32000**	**39000**	**19.7**
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-IW0002I-027.5-20110801-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**9400**	**16000**	**52.0**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-FD-20110801-03	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**2900**	**4100**	**34.3**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-RW0007-038.5-20110801-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**2900**	**3500**	**18.8**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-FD-20110801-01	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**3.2 I**	**2.2 I**	**37.0**
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-BW0002D-045.5-20110802-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	16 U	16 U	NC
LC34-BW0002F	2-Aug-11	58 - 61	LC34-BW0002F-059.5-20110802	LC34-BW0002F-059.5-20110802-D	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	0.31 U	0.78 U	NC
LC34-RW0007	14-Feb-12	35.25 - 41.85	LC34-RW0007-038.5-20120214	LC34-FD-20120214-01	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	**5600**	**9500**	**51.7**
LC34-BW0003E	22-Mar-11	51 - 54	LC34-BW0003E-052.5-20110322	LC34-FD-20110322-01	1-BUTANOL	µg/L	6.7 U	6.7 U	NC
LC34-RW0007	28-Mar-11	35.25 - 41.85	LC34-RW0007-038.5-20110328	LC34-FD-20110328-01	1-BUTANOL	µg/L	1400 U	1400 U	NC
LC34-IW0002D	7-Apr-11	35 - 40	LC34-IW0002D-037.5-20110407	LC34-FD-20110407-01	1-BUTANOL	µg/L	1700 U	340 U	NC
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-01	1-BUTANOL	µg/L	1700 U	1700 U	NC
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-10	1-BUTANOL	µg/L	170 U	170 U	NC
LC34-BW0002F	19-Apr-11	58 - 61	LC34-BW0002F-059.5-20110419	LC34-FD-20110419-13	1-BUTANOL	µg/L	6.7 U	6.7 U	NC
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-BW0003B-031.5-20110419-D	1-BUTANOL	µg/L	670 U	670 U	NC
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-BW0003D-045.5-20110419-D	1-BUTANOL	µg/L	340 U	340 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	1-BUTANOL	µg/L	1700 U	1400 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-RW0008-052.0-20110419-D	1-BUTANOL	µg/L	67 U	67 U	NC
LC34-BW0001A	1-Aug-11	23 - 26	LC34-BW0001A-024.5-20110801	LC34-FD-20110801-04	1-BUTANOL	µg/L	5300 U	**49000 I**	NC
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-FD-20110801-05	1-BUTANOL	µg/L	**15000 I**	**22000 I**	**37.8**
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-IW0002I-027.5-20110801-D	1-BUTANOL	µg/L	**630000**	**590000**	**6.6**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-FD-20110801-03	1-BUTANOL	µg/L	**180000**	**230000**	**24.4**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-RW0007-038.5-20110801-D	1-BUTANOL	µg/L	**180000**	**240000**	**28.6**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-FD-20110801-01	1-BUTANOL	µg/L	**63 I,V**	**220 I**	**111.0**
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-BW0002D-045.5-20110802-D	1-BUTANOL	µg/L	530 U	**4300 I**	NC
LC34-BW0002F	2-Aug-11	58 - 61	LC34-BW0002F-059.5-20110802	LC34-BW0002F-059.5-20110802-D	1-BUTANOL	µg/L	11 U	27 U	NC
LC34-RW0007	14-Feb-12	35.25 - 41.85	LC34-RW0007-038.5-20120214	LC34-FD-20120214-01	1-BUTANOL	µg/L	530 U	530 U	NC

TABLE F-1
RELATIVE PERCENT DIFFERENCE IN FIELD DUPLICATES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Depth Interval (ft BLS)	Parent Sample ID	Field Duplicate Sample ID	Parameter	Units	Parent Sample Result	Field Duplicate Sample Result	RPD
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-02	ACETIC ACID	MG/L	**2.4**	**2.4**	**0.0**
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-09	ACETIC ACID	MG/L	**3.3**	**3.3**	**0.0**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	ACETIC ACID	MG/L	**22**	**22**	**0.0**
LC34-IW0002D	1-Aug-11	35 - 40	LC34-IW0002D-037.5-20110801	LC34-IW0002D-037.5-20110801-D	ACETIC ACID	MG/L	**1100**	**1100**	**0.0**
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-FD-20110801-06	ACETIC ACID	MG/L	**610**	**620**	**1.6**
LC34-BW0003D	2-Aug-11	44 - 47	LC34-BW0003D-045.5-20110802	LC34-FD-20110802-08	ACETIC ACID	MG/L	**640**	**620**	**3.2**
LC34-IW0002I	15-Feb-12	25 - 30	LC34-IW0002I-027.5-20120215	LC34-FD-20120215-03	ACETIC ACID	MG/L	**3.6**	**3.7**	**2.7**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	ALKALINITY	MG/L	**223**	**221**	**0.9**
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-07	ALKALINITY	MG/L	**173**	**171**	**1.2**
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-BW0001D-045.5-20110801-D	ALKALINITY	MG/L	**250**	**245**	**2.0**
LC34-BW0003C	2-Aug-11	37 - 40	LC34-BW0003C-038.5-20110802	LC34-FD-20110802-04	ALKALINITY	MG/L	**760**	**746**	**1.9**
LC34-BW0003C	15-Feb-12	37 - 40	LC34-BW0003C-038.5-20120215	LC34-FD-20120215-02	ALKALINITY	MG/L	**308**	**310**	**0.6**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	ARSENIC	µg/L	4 U	4 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-08	ARSENIC	µg/L	4 U	4 U	NC
LC34-IW0002D1	1-Aug-11	50 - 55	LC34-IW0002D1-052.5-20110801	LC34-IW0002D1-052.5-20110801-D	ARSENIC	µg/L	2 U	2 U	NC
LC34-IW0076	1-Aug-11	70 - 80	LC34-IW0076-075.0-20110801	LC34-FD-20110801-08	ARSENIC	µg/L	2 U	2 U	NC
LC34-RW0008	14-Feb-12	47.5 - 57	LC34-RW0008-052.0-20120214	LC34-FD-20120214-02	ARSENIC	µg/L	10 U	10 U	NC
LC34-BW0001B	1-Aug-11	30 - 33	LC34-BW0001B-031.5-20110801	LC34-BW0001B-031.5-20110801-D	BROMIDE	MG/L	0.6 U	0.6 U	NC
LC34-BW0001F	1-Aug-11	58 - 61	LC34-BW0001F-059.5-20110801	LC34-FD-20110801-09	BROMIDE	MG/L	**26.9**	**20.5**	**27.0**
LC34-BW0002A	2-Aug-11	23 - 26	LC34-BW0002A-024.5-20110802	LC34-FD-20110802-05	BROMIDE	MG/L	0.6 U	0.6 U	NC
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-FD-20110802-06	BROMIDE	MG/L	**1.1**	**1**	**9.5**
LC34-BW0001C	16-Feb-12	37 - 40	LC34-BW0001C-038.5-20120216	LC34-FD-20120216-03	BROMIDE	MG/L	**29.3**	**36.6**	**22.2**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-02	BUTANOIC ACID	MG/L	0.56 U	0.56 U	NC
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-09	BUTANOIC ACID	MG/L	0.56 U	0.56 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	BUTANOIC ACID	MG/L	0.56 U	0.56 U	NC
LC34-IW0002D	1-Aug-11	35 - 40	LC34-IW0002D-037.5-20110801	LC34-IW0002D-037.5-20110801-D	BUTANOIC ACID	MG/L	**1200**	**1200**	**0.0**
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-FD-20110801-06	BUTANOIC ACID	MG/L	**210**	**200**	**4.9**
LC34-BW0003D	2-Aug-11	44 - 47	LC34-BW0003D-045.5-20110802	LC34-FD-20110802-08	BUTANOIC ACID	MG/L	**320**	**310**	**3.2**
LC34-IW0002I	15-Feb-12	25 - 30	LC34-IW0002I-027.5-20120215	LC34-FD-20120215-03	BUTANOIC ACID	MG/L	0.56 U	0.56 U	NC
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-04	CARBON	MG/L	**4**	**4**	**0.0**
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-FD-20110419-12	CARBON	MG/L	**3.3**	**3.2**	**3.1**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	CARBON	MG/L	**4.4**	**4.5**	**2.2**
LC34-BW0001C	1-Aug-11	37 - 40	LC34-BW0001C-038.5-20110801	LC34-FD-20110801-02	CARBON	MG/L	**301**	**304**	**1.0**
LC34-BW0002B	2-Aug-11	30 - 33	LC34-BW0002B-031.5-20110802	LC34-FD-20110802-03	CARBON	MG/L	**12.9**	**13.8**	**6.7**
LC34-BW0003B	2-Aug-11	30 - 33	LC34-BW0003B-031.5-20110802	LC34-BW0003B-031.5-20110802-D	CARBON	MG/L	**89**	**99**	**10.6**
LC34-BW0001A	16-Feb-12	23 - 26	LC34-BW0001A-024.5-20120216	LC34-FD-20120216-01	CARBON	MG/L	**2.8**	**3**	**6.9**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	CHLORIDE	MG/L	**642**	**645**	**0.5**
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-06	CHLORIDE	MG/L	**675**	**648**	**4.1**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-RW0008-052.0-20110801-D	CHLORIDE	MG/L	**602**	**629**	**4.4**
LC34-BW0002C	2-Aug-11	37 - 40	LC34-BW0002C-038.5-20110802	LC34-FD-20110802-01	CHLORIDE	MG/L	**539**	**53.2**	**164.1**
LC34-BW0002C	14-Feb-12	37 - 40	LC34-BW0002C-038.5-20120214	LC34-FD-20120214-03	CHLORIDE	MG/L	**50.5**	**46.8**	**7.6**

TABLE F-1
RELATIVE PERCENT DIFFERENCE IN FIELD DUPLICATES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Depth Interval (ft BLS)	Parent Sample ID	Field Duplicate Sample ID	Parameter	Units	Parent Sample Result	Field Duplicate Sample Result	RPD
LC34-BW0003E	22-Mar-11	51 - 54	LC34-BW0003E-052.5-20110322	LC34-FD-20110322-01	CIS-1,2-DICHLOROETHENE	µg/L	**0.62 I**	**1.5 I**	**83.0**
LC34-RW0007	28-Mar-11	35.25 - 41.85	LC34-RW0007-038.5-20110328	LC34-FD-20110328-01	CIS-1,2-DICHLOROETHENE	µg/L	**31000**	**32000**	**3.2**
LC34-IW0002D	7-Apr-11	35 - 40	LC34-IW0002D-037.5-20110407	LC34-FD-20110407-01	CIS-1,2-DICHLOROETHENE	µg/L	**28000**	**25000**	**11.3**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-01	CIS-1,2-DICHLOROETHENE	µg/L	**41000**	**38000**	**7.6**
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-10	CIS-1,2-DICHLOROETHENE	µg/L	**7500**	**7900**	**5.2**
LC34-BW0002F	19-Apr-11	58 - 61	LC34-BW0002F-059.5-20110419	LC34-FD-20110419-13	CIS-1,2-DICHLOROETHENE	µg/L	**80**	**58**	**31.9**
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-BW0003B-031.5-20110419-D	CIS-1,2-DICHLOROETHENE	µg/L	**46000**	**52000**	**12.2**
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-BW0003D-045.5-20110419-D	CIS-1,2-DICHLOROETHENE	µg/L	**6800**	**5700**	**17.6**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	CIS-1,2-DICHLOROETHENE	µg/L	**25000**	**23000**	**8.3**
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-RW0008-052.0-20110419-D	CIS-1,2-DICHLOROETHENE	µg/L	**510**	**500**	**2.0**
LC34-BW0001A	1-Aug-11	23 - 26	LC34-BW0001A-024.5-20110801	LC34-FD-20110801-04	CIS-1,2-DICHLOROETHENE	µg/L	**36000**	**39000**	**8.0**
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-FD-20110801-05	CIS-1,2-DICHLOROETHENE	µg/L	**4300 I**	**5900**	**31.4**
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-IW0002I-027.5-20110801-D	CIS-1,2-DICHLOROETHENE	µg/L	**13000**	**14000**	**7.4**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-FD-20110801-03	CIS-1,2-DICHLOROETHENE	µg/L	**31000**	**36000**	**14.9**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-RW0007-038.5-20110801-D	CIS-1,2-DICHLOROETHENE	µg/L	**31000**	**36000**	**14.9**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-FD-20110801-01	CIS-1,2-DICHLOROETHENE	µg/L	**55**	**47**	**15.7**
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-BW0002D-045.5-20110802-D	CIS-1,2-DICHLOROETHENE	µg/L	**8800**	**8100**	**8.3**
LC34-BW0002F	2-Aug-11	58 - 61	LC34-BW0002F-059.5-20110802	LC34-BW0002F-059.5-20110802-D	CIS-1,2-DICHLOROETHENE	µg/L	**150**	**100**	**40.0**
LC34-RW0007	14-Feb-12	35.25 - 41.85	LC34-RW0007-038.5-20120214	LC34-FD-20120214-01	CIS-1,2-DICHLOROETHENE	µg/L	**8900**	**9100**	**2.2**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-03	ETHANE	µg/L	0.29 U	0.29 U	NC
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-FD-20110419-11	ETHANE	µg/L	0.29 U	0.29 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	ETHANE	µg/L	0.29 U	0.29 U	NC
LC34-IW0002D1	1-Aug-11	50 - 55	LC34-IW0002D1-052.5-20110801	LC34-IW0002D1-052.5-20110801-D	ETHANE	µg/L	**20**	**22**	**9.5**
LC34-BW0003A	2-Aug-11	23 - 26	LC34-BW0003A-024.5-20110802	LC34-FD-20110802-07	ETHANE	µg/L	**12**	**12**	**0.0**
LC34-BW0003F	2-Aug-11	58 - 61	LC34-BW0003F-059.5-20110802	LC34-FD-20110802-02	ETHANE	µg/L	0.29 U	0.29 U	NC
LC34-BW0002A	15-Feb-12	23 - 26	LC34-BW0002A-024.5-20120215	LC34-FD-20120215-01	ETHANE	µg/L	**98**	**96**	**2.1**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-03	ETHENE	µg/L	**33**	**32**	**3.1**
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-FD-20110419-11	ETHENE	µg/L	**4.5**	**4.3**	**4.5**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	ETHENE	µg/L	**11**	**11**	**0.0**
LC34-IW0002D1	1-Aug-11	50 - 55	LC34-IW0002D1-052.5-20110801	LC34-IW0002D1-052.5-20110801-D	ETHENE	µg/L	**29**	**31**	**6.7**
LC34-BW0003A	2-Aug-11	23 - 26	LC34-BW0003A-024.5-20110802	LC34-FD-20110802-07	ETHENE	µg/L	**240**	**250**	**4.1**
LC34-BW0003F	2-Aug-11	58 - 61	LC34-BW0003F-059.5-20110802	LC34-FD-20110802-02	ETHENE	µg/L	0.3 U	0.3 U	NC
LC34-BW0002A	15-Feb-12	23 - 26	LC34-BW0002A-024.5-20120215	LC34-FD-20120215-01	ETHENE	µg/L	**140**	**150**	**6.9**
LC34-BW0001B	1-Aug-11	30 - 33	LC34-BW0001B-031.5-20110801	LC34-BW0001B-031.5-20110801-D	IODIDE	MG/L	0.2 U	0.2 U	NC
LC34-BW0001F	1-Aug-11	58 - 61	LC34-BW0001F-059.5-20110801	LC34-FD-20110801-09	IODIDE	MG/L	0.2 U	0.2 U	NC
LC34-BW0002A	2-Aug-11	23 - 26	LC34-BW0002A-024.5-20110802	LC34-FD-20110802-05	IODIDE	MG/L	0.2 U	0.2 U	NC
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-FD-20110802-06	IODIDE	MG/L	0.2 U	0.2 U	NC
LC34-BW0001C	16-Feb-12	37 - 40	LC34-BW0001C-038.5-20120216	LC34-FD-20120216-03	IODIDE	MG/L	**40.7**	0.2 U	NC

TABLE F-1
RELATIVE PERCENT DIFFERENCE IN FIELD DUPLICATES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Depth Interval (ft BLS)	Parent Sample ID	Field Duplicate Sample ID	Parameter	Units	Parent Sample Result	Field Duplicate Sample Result	RPD
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	IRON	µg/L	**120**	60 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-08	IRON	µg/L	**120**	60 U	NC
LC34-IW0002D1	1-Aug-11	50 - 55	LC34-IW0002D1-052.5-20110801	LC34-IW0002D1-052.5-20110801-D	IRON	µg/L	20 U	20 U	NC
LC34-IW0076	1-Aug-11	70 - 80	LC34-IW0076-075.0-20110801	LC34-FD-20110801-08	IRON	µg/L	20 U	20 U	NC
LC34-RW0008	14-Feb-12	47.5 - 57	LC34-RW0008-052.0-20120214	LC34-FD-20120214-02	IRON	µg/L	100 U	100 U	NC
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-02	LACTIC ACID	MG/L	0.072 U	0.072 U	NC
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-09	LACTIC ACID	MG/L	0.072 U	0.072 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	LACTIC ACID	MG/L	0.072 U	0.072 U	NC
LC34-IW0002D	1-Aug-11	35 - 40	LC34-IW0002D-037.5-20110801	LC34-IW0002D-037.5-20110801-D	LACTIC ACID	MG/L	0.72 U	0.72 U	NC
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-FD-20110801-06	LACTIC ACID	MG/L	0.36 U	0.36 U	NC
LC34-BW0003D	2-Aug-11	44 - 47	LC34-BW0003D-045.5-20110802	LC34-FD-20110802-08	LACTIC ACID	MG/L	0.36 U	0.36 U	NC
LC34-IW0002I	15-Feb-12	25 - 30	LC34-IW0002I-027.5-20120215	LC34-FD-20120215-03	LACTIC ACID	MG/L	0.072 U	0.072 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	MANGANESE	µg/L	**10**	2 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-08	MANGANESE	µg/L	**15**	**14**	**6.9**
LC34-IW0002D1	1-Aug-11	50 - 55	LC34-IW0002D1-052.5-20110801	LC34-IW0002D1-052.5-20110801-D	MANGANESE	µg/L	**60**	**59**	**1.7**
LC34-IW0076	1-Aug-11	70 - 80	LC34-IW0076-075.0-20110801	LC34-FD-20110801-08	MANGANESE	µg/L	2 U	**10**	NC
LC34-RW0008	14-Feb-12	47.5 - 57	LC34-RW0008-052.0-20120214	LC34-FD-20120214-02	MANGANESE	µg/L	**12**	**12**	**0.0**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-03	METHANE	µg/L	**75**	**80**	**6.5**
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-FD-20110419-11	METHANE	µg/L	**44**	**43**	**2.3**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	METHANE	µg/L	**47**	**47**	**0.0**
LC34-IW0002D1	1-Aug-11	50 - 55	LC34-IW0002D1-052.5-20110801	LC34-IW0002D1-052.5-20110801-D	METHANE	µg/L	**5600**	**5800**	**3.5**
LC34-BW0003A	2-Aug-11	23 - 26	LC34-BW0003A-024.5-20110802	LC34-FD-20110802-07	METHANE	µg/L	**110**	**110**	**0.0**
LC34-BW0003F	2-Aug-11	58 - 61	LC34-BW0003F-059.5-20110802	LC34-FD-20110802-02	METHANE	µg/L	**750**	**850**	**12.5**
LC34-BW0002A	15-Feb-12	23 - 26	LC34-BW0002A-024.5-20120215	LC34-FD-20120215-01	METHANE	µg/L	**410**	**410**	**0.0**
LC34-BW0003E	22-Mar-11	51 - 54	LC34-BW0003E-052.5-20110322	LC34-FD-20110322-01	N-BUTYL ACETATE	µg/L	0.3 U	0.3 U	NC
LC34-RW0007	28-Mar-11	35.25 - 41.85	LC34-RW0007-038.5-20110328	LC34-FD-20110328-01	N-BUTYL ACETATE	µg/L	60 U	60 U	NC
LC34-IW0002D	7-Apr-11	35 - 40	LC34-IW0002D-037.5-20110407	LC34-FD-20110407-01	N-BUTYL ACETATE	µg/L	75 U	15 U	NC
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-01	N-BUTYL ACETATE	µg/L	75 U	75 U	NC
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-10	N-BUTYL ACETATE	µg/L	7.5 U	7.5 U	NC
LC34-BW0002F	19-Apr-11	58 - 61	LC34-BW0002F-059.5-20110419	LC34-FD-20110419-13	N-BUTYL ACETATE	µg/L	0.3 U	0.3 U	NC
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-BW0003B-031.5-20110419-D	N-BUTYL ACETATE	µg/L	30 U	30 U	NC
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-BW0003D-045.5-20110419-D	N-BUTYL ACETATE	µg/L	15 U	15 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	N-BUTYL ACETATE	µg/L	75 U	60 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-RW0008-052.0-20110419-D	N-BUTYL ACETATE	µg/L	3 U	3 U	NC
LC34-BW0001A	1-Aug-11	23 - 26	LC34-BW0001A-024.5-20110801	LC34-FD-20110801-04	N-BUTYL ACETATE	µg/L	**340 I**	**670 I**	**65.3**
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-FD-20110801-05	N-BUTYL ACETATE	µg/L	**71000**	**84000**	**16.8**
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-IW0002I-027.5-20110801-D	N-BUTYL ACETATE	µg/L	**11000**	**33000**	**100.0**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-FD-20110801-03	N-BUTYL ACETATE	µg/L	53 U	**130 I**	NC
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-RW0007-038.5-20110801-D	N-BUTYL ACETATE	µg/L	53 U	**170 I**	NC
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-FD-20110801-01	N-BUTYL ACETATE	µg/L	**4 I**	**4.3 I**	**7.2**
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-BW0002D-045.5-20110802-D	N-BUTYL ACETATE	µg/L	**86 I**	**81 I**	**6.0**
LC34-BW0002F	2-Aug-11	58 - 61	LC34-BW0002F-059.5-20110802	LC34-BW0002F-059.5-20110802-D	N-BUTYL ACETATE	µg/L	**0.41 I**	0.53 U	NC
LC34-RW0007	14-Feb-12	35.25 - 41.85	LC34-RW0007-038.5-20120214	LC34-FD-20120214-01	N-BUTYL ACETATE	µg/L	11 U	11 U	NC

TABLE F-1
RELATIVE PERCENT DIFFERENCE IN FIELD DUPLICATES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Depth Interval (ft BLS)	Parent Sample ID	Field Duplicate Sample ID	Parameter	Units	Parent Sample Result	Field Duplicate Sample Result	RPD
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	NITRATE-N	MG/L	0.07 U	0.07 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-06	NITRATE-N	MG/L	0.07 U	0.07 U	NC
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-RW0008-052.0-20110801-D	NITRATE-N	MG/L	0.2 U	0.2 U	NC
LC34-BW0002C	2-Aug-11	37 - 40	LC34-BW0002C-038.5-20110802	LC34-FD-20110802-01	NITRATE-N	MG/L	0.2 U	0.2 U	NC
LC34-BW0002C	14-Feb-12	37 - 40	LC34-BW0002C-038.5-20120214	LC34-FD-20120214-03	NITRATE-N	MG/L	0.2 U	0.2 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	NITRITE-N	MG/L	0.9 U	0.9 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-06	NITRITE-N	MG/L	0.9 U	0.9 U	NC
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-RW0008-052.0-20110801-D	NITRITE-N	MG/L	2 U	1 U	NC
LC34-BW0002C	2-Aug-11	37 - 40	LC34-BW0002C-038.5-20110802	LC34-FD-20110802-01	NITRITE-N	MG/L	1 U	0.1 U	NC
LC34-BW0002C	14-Feb-12	37 - 40	LC34-BW0002C-038.5-20120214	LC34-FD-20120214-03	NITRITE-N	MG/L	0.004 U	0.004 U	NC
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-02	PROPIONIC ACID	MG/L	0.13 U	0.13 U	NC
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-09	PROPIONIC ACID	MG/L	0.13 U	0.13 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	PROPIONIC ACID	MG/L	0.13 U	0.13 U	NC
LC34-IW0002D	1-Aug-11	35 - 40	LC34-IW0002D-037.5-20110801	LC34-IW0002D-037.5-20110801-D	PROPIONIC ACID	MG/L	**11**	1.3 U	NC
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-FD-20110801-06	PROPIONIC ACID	MG/L	0.64 U	0.64 U	NC
LC34-BW0003D	2-Aug-11	44 - 47	LC34-BW0003D-045.5-20110802	LC34-FD-20110802-08	PROPIONIC ACID	MG/L	0.64 U	0.64 U	NC
LC34-IW0002I	15-Feb-12	25 - 30	LC34-IW0002I-027.5-20120215	LC34-FD-20120215-03	PROPIONIC ACID	MG/L	0.13 U	0.13 U	NC
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-02	PYRUVIC ACID	MG/L	0.018 U	0.018 U	NC
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-09	PYRUVIC ACID	MG/L	0.018 U	0.018 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	PYRUVIC ACID	MG/L	0.018 U	0.018 U	NC
LC34-IW0002D	1-Aug-11	35 - 40	LC34-IW0002D-037.5-20110801	LC34-IW0002D-037.5-20110801-D	PYRUVIC ACID	MG/L	0.18 U	0.18 U	NC
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-FD-20110801-06	PYRUVIC ACID	MG/L	0.09 U	0.09 U	NC
LC34-BW0003D	2-Aug-11	44 - 47	LC34-BW0003D-045.5-20110802	LC34-FD-20110802-08	PYRUVIC ACID	MG/L	0.09 U	0.09 U	NC
LC34-IW0002I	15-Feb-12	25 - 30	LC34-IW0002I-027.5-20120215	LC34-FD-20120215-03	PYRUVIC ACID	MG/L	0.018 U	0.018 U	NC
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	SULFATE	MG/L	**61.2**	**60.5**	**1.2**
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-06	SULFATE	MG/L	**92.4**	**92.3**	**0.1**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-RW0008-052.0-20110801-D	SULFATE	MG/L	0.5 U	0.5 U	NC
LC34-BW0002C	2-Aug-11	37 - 40	LC34-BW0002C-038.5-20110802	LC34-FD-20110802-01	SULFATE	MG/L	0.5 U	0.5 U	NC
LC34-BW0002C	14-Feb-12	37 - 40	LC34-BW0002C-038.5-20120214	LC34-FD-20120214-03	SULFATE	MG/L	**26.2**	**25.9**	**1.2**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	SULFIDE	MG/L	**1**	0.48 U	NC
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-FD-20110419-05	SULFIDE	MG/L	0.5 U	0.48 U	NC
LC34-BW0001E	1-Aug-11	51 - 54	LC34-BW0001E-052.5-20110801	LC34-FD-20110801-07	SULFIDE	MG/L	**1.5**	**1.5**	**0.0**
LC34-BW0003C	2-Aug-11	37 - 40	LC34-BW0003C-038.5-20110802	LC34-BW0003C-038.5-20110802-D	SULFIDE	MG/L	**14.6**	**14.7**	**0.7**
LC34-BW0001B	16-Feb-12	30 - 33	LC34-BW0001B-031.5-20120216	LC34-FD-20120216-02	SULFIDE	MG/L	**3.4**	**3.2**	**6.1**
LC34-BW0003E	22-Mar-11	51 - 54	LC34-BW0003E-052.5-20110322	LC34-FD-20110322-01	TRANS-1,2-DICHLOROETHENE	µg/L	0.3 U	0.3 U	NC
LC34-RW0007	28-Mar-11	35.25 - 41.85	LC34-RW0007-038.5-20110328	LC34-FD-20110328-01	TRANS-1,2-DICHLOROETHENE	µg/L	**200 I**	**200 I**	**0.0**
LC34-IW0002D	7-Apr-11	35 - 40	LC34-IW0002D-037.5-20110407	LC34-FD-20110407-01	TRANS-1,2-DICHLOROETHENE	µg/L	**360 I**	**380**	**5.4**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-01	TRANS-1,2-DICHLOROETHENE	µg/L	**820 I**	**790 I**	**3.7**
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-10	TRANS-1,2-DICHLOROETHENE	µg/L	**49 I**	**49 I**	**0.0**
LC34-BW0002F	19-Apr-11	58 - 61	LC34-BW0002F-059.5-20110419	LC34-FD-20110419-13	TRANS-1,2-DICHLOROETHENE	µg/L	**2.1 I**	**1.4 I**	**40.0**
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-BW0003B-031.5-20110419-D	TRANS-1,2-DICHLOROETHENE	µg/L	**600**	**1000**	**50.0**
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-BW0003D-045.5-20110419-D	TRANS-1,2-DICHLOROETHENE	µg/L	**33 I**	**27 I**	**20.0**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	TRANS-1,2-DICHLOROETHENE	µg/L	**170 I**	**160 I**	**6.1**

TABLE F-1
RELATIVE PERCENT DIFFERENCE IN FIELD DUPLICATES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Depth Interval (ft BLS)	Parent Sample ID	Field Duplicate Sample ID	Parameter	Units	Parent Sample Result	Field Duplicate Sample Result	RPD
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-RW0008-052.0-20110419-D	TRANS-1,2-DICHLOROETHENE	µg/L	**3 I**	**3.3 I**	**9.5**
LC34-BW0001A	1-Aug-11	23 - 26	LC34-BW0001A-024.5-20110801	LC34-FD-20110801-04	TRANS-1,2-DICHLOROETHENE	µg/L	**690 I**	**680 I**	**1.5**
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-FD-20110801-05	TRANS-1,2-DICHLOROETHENE	µg/L	200 U	200 U	NC
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-IW0002I-027.5-20110801-D	TRANS-1,2-DICHLOROETHENE	µg/L	**220 I**	**260 I**	**16.7**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-FD-20110801-03	TRANS-1,2-DICHLOROETHENE	µg/L	**130 I**	**130 I**	**0.0**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-RW0007-038.5-20110801-D	TRANS-1,2-DICHLOROETHENE	µg/L	**130 I**	**130 I**	**0.0**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-FD-20110801-01	TRANS-1,2-DICHLOROETHENE	µg/L	**19**	**17**	**11.1**
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-BW0002D-045.5-20110802-D	TRANS-1,2-DICHLOROETHENE	µg/L	**59 I**	**63 I**	**6.6**
LC34-BW0002F	2-Aug-11	58 - 61	LC34-BW0002F-059.5-20110802	LC34-BW0002F-059.5-20110802-D	TRANS-1,2-DICHLOROETHENE	µg/L	**4.6 I**	**2.7 I**	**52.1**
LC34-RW0007	14-Feb-12	35.25 - 41.85	LC34-RW0007-038.5-20120214	LC34-FD-20120214-01	TRANS-1,2-DICHLOROETHENE	µg/L	**250 I**	**210 I**	**17.4**
LC34-BW0003E	22-Mar-11	51 - 54	LC34-BW0003E-052.5-20110322	LC34-FD-20110322-01	TRICHLOROETHENE	µg/L	0.3 U	0.3 U	NC
LC34-RW0007	28-Mar-11	35.25 - 41.85	LC34-RW0007-038.5-20110328	LC34-FD-20110328-01	TRICHLOROETHENE	µg/L	**17000**	**16000**	**6.1**
LC34-IW0002D	7-Apr-11	35 - 40	LC34-IW0002D-037.5-20110407	LC34-FD-20110407-01	TRICHLOROETHENE	µg/L	**1100 I**	**350**	**103.4**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-01	TRICHLOROETHENE	µg/L	**140 I**	**140 I**	**0.0**
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-10	TRICHLOROETHENE	µg/L	**38 I**	**44 I**	**14.6**
LC34-BW0002F	19-Apr-11	58 - 61	LC34-BW0002F-059.5-20110419	LC34-FD-20110419-13	TRICHLOROETHENE	µg/L	**4.7 I**	**5.3**	**12.0**
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-BW0003B-031.5-20110419-D	TRICHLOROETHENE	µg/L	30 U	30 U	NC
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-BW0003D-045.5-20110419-D	TRICHLOROETHENE	µg/L	**650**	**500**	**26.1**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	TRICHLOROETHENE	µg/L	**12000**	**12000**	**0.0**
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-RW0008-052.0-20110419-D	TRICHLOROETHENE	µg/L	**1000**	**1100**	**9.5**
LC34-BW0001A	1-Aug-11	23 - 26	LC34-BW0001A-024.5-20110801	LC34-FD-20110801-04	TRICHLOROETHENE	µg/L	**300 I**	**470 I**	**44.2**
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-FD-20110801-05	TRICHLOROETHENE	µg/L	**120000**	**170000**	**34.5**
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-IW0002I-027.5-20110801-D	TRICHLOROETHENE	µg/L	**280 I**	**310 I**	**10.2**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-FD-20110801-03	TRICHLOROETHENE	µg/L	**2400**	**3300**	**31.6**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-RW0007-038.5-20110801-D	TRICHLOROETHENE	µg/L	**2400**	**2800**	**15.4**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-FD-20110801-01	TRICHLOROETHENE	µg/L	**3.5 I**	**3.2 I**	**9.0**
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-BW0002D-045.5-20110802-D	TRICHLOROETHENE	µg/L	**43 I**	**41 I**	**4.8**
LC34-BW0002F	2-Aug-11	58 - 61	LC34-BW0002F-059.5-20110802	LC34-BW0002F-059.5-20110802-D	TRICHLOROETHENE	µg/L	**5.1**	**2.1 I**	**83.3**
LC34-RW0007	14-Feb-12	35.25 - 41.85	LC34-RW0007-038.5-20120214	LC34-FD-20120214-01	TRICHLOROETHENE	µg/L	**560**	**1100**	**65.1**
LC34-BW0003E	22-Mar-11	51 - 54	LC34-BW0003E-052.5-20110322	LC34-FD-20110322-01	VINYL CHLORIDE	µg/L	0.3 U	0.3 U	NC
LC34-RW0007	28-Mar-11	35.25 - 41.85	LC34-RW0007-038.5-20110328	LC34-FD-20110328-01	VINYL CHLORIDE	µg/L	**740 I**	**810 I**	**9.0**
LC34-IW0002D	7-Apr-11	35 - 40	LC34-IW0002D-037.5-20110407	LC34-FD-20110407-01	VINYL CHLORIDE	µg/L	**2800**	**810**	**110.2**
LC34-BW0002A	19-Apr-11	23 - 26	LC34-BW0002A-024.5-20110419	LC34-FD-20110419-01	VINYL CHLORIDE	µg/L	**1900**	**1800**	**5.4**
LC34-BW0002D	19-Apr-11	44 - 47	LC34-BW0002D-045.5-20110419	LC34-FD-20110419-10	VINYL CHLORIDE	µg/L	**410**	**360**	**13.0**
LC34-BW0002F	19-Apr-11	58 - 61	LC34-BW0002F-059.5-20110419	LC34-FD-20110419-13	VINYL CHLORIDE	µg/L	**67**	**38**	**55.2**
LC34-BW0003B	19-Apr-11	30 - 33	LC34-BW0003B-031.5-20110419	LC34-BW0003B-031.5-20110419-D	VINYL CHLORIDE	µg/L	**5500**	**9500**	**53.3**
LC34-BW0003D	19-Apr-11	44 - 47	LC34-BW0003D-045.5-20110419	LC34-BW0003D-045.5-20110419-D	VINYL CHLORIDE	µg/L	**400**	**340**	**16.2**
LC34-RW0007	19-Apr-11	35.25 - 41.85	LC34-RW0007-038.5-20110419	LC34-RW0007-038.5-20110419-D	VINYL CHLORIDE	µg/L	**990 I**	**900 I**	**9.5**
LC34-RW0008	19-Apr-11	47.5 - 57	LC34-RW0008-052.0-20110419	LC34-RW0008-052.0-20110419-D	VINYL CHLORIDE	µg/L	**24 I**	**23 I**	**4.3**
LC34-BW0001A	1-Aug-11	23 - 26	LC34-BW0001A-024.5-20110801	LC34-FD-20110801-04	VINYL CHLORIDE	µg/L	**4000**	**5200**	**26.1**
LC34-BW0001D	1-Aug-11	44 - 47	LC34-BW0001D-045.5-20110801	LC34-FD-20110801-05	VINYL CHLORIDE	µg/L	230 U	230 U	NC
LC34-IW0002I	1-Aug-11	25 - 30	LC34-IW0002I-027.5-20110801	LC34-IW0002I-027.5-20110801-D	VINYL CHLORIDE	µg/L	**270 I**	**370 I**	**31.3**
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-FD-20110801-03	VINYL CHLORIDE	µg/L	**770 I**	**850 I**	**9.9**

TABLE F-1
RELATIVE PERCENT DIFFERENCE IN FIELD DUPLICATES
Hot Spot 1, LC34, CCAFS / ESTCP Project ER-0716

Location	Sample Date	Depth Interval (ft BLS)	Parent Sample ID	Field Duplicate Sample ID	Parameter	Units	Parent Sample Result	Field Duplicate Sample Result	RPD
LC34-RW0007	1-Aug-11	35.25 - 41.85	LC34-RW0007-038.5-20110801	LC34-RW0007-038.5-20110801-D	VINYL CHLORIDE	µg/L	**770 I**	**810 I**	**5.1**
LC34-RW0008	1-Aug-11	47.5 - 57	LC34-RW0008-052.0-20110801	LC34-FD-20110801-01	VINYL CHLORIDE	µg/L	**2600**	**2900**	**10.9**
LC34-BW0002D	2-Aug-11	44 - 47	LC34-BW0002D-045.5-20110802	LC34-BW0002D-045.5-20110802-D	VINYL CHLORIDE	µg/L	**1500**	**1100**	**30.8**
LC34-BW0002F	2-Aug-11	58 - 61	LC34-BW0002F-059.5-20110802	LC34-BW0002F-059.5-20110802-D	VINYL CHLORIDE	µg/L	**440**	**370**	**17.3**
LC34-RW0007	14-Feb-12	35.25 - 41.85	LC34-RW0007-038.5-20120214	LC34-FD-20120214-01	VINYL CHLORIDE	µg/L	**6400**	**7600**	**17.1**

Notes:

1. ft BLS indicates feet below land surface.
2. µg/L indicates micrograms per liter.
3. MG/L indicates milligrams per liter.
4. U indicates result not detected above practical quantitation limit (PQL)
5. I indicates the result is between the method detection limit (MDL) and the PQL.
6. V indicates analyte was detected in both the sample and the associated method blank
7. NC indicates not calculated.
8. RPD indicates relative percent difference
9. **Bold** indicates the result was detected above the MDL.
10. Results not displayed to a set number of significant digits.

APPENDIX G

LABORATORY REPORTS

Columbia Analytical Services™ 1 Mustard Street, Suite 250 | Rochester, NY 14609 | 585-288-5380 | 585-288-8475 fax | www.caslab.com

February 11, 2011 Service Request No: R1100415

Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34

Dear Cory:

Enclosed are the results of the sample(s) submitted to our laboratory on January 21, 2011. For your reference, these analyses have been assigned our service request number **R1100415**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1100415

Lab ID	Client ID
R1100415-001	LC34-SB1003-028.0-20110119
R1100415-002	LC34-SB1003-034.0-20110119
R1100415-003	LC34-SB1003-047.0-20110119
R1100415-004	LC34-SB1003-053.0-20110119
R1100415-005	LC34-SB1002-028.0-20110119
R1100415-006	LC34-SB1002-034.0-20110119
R1100415-007	LC34-SB1002-047.0-20110119
R1100415-008	LC34-SB1002-053.0-20110119

All samples were received in good condition unless otherwise noted on the cooler receipt and preservation check form located at the end of this report.

All samples were preserved in accordance with approved analytical methods.

All samples have been analyzed by the approved methods cited on the analytical results pages.

All holding times and associated QC were within limits.

No analytical or QC problems were encountered.

All sampling activities performed by CAS personnel have been in accordance with "CAS Field Procedures and Measurements Manual" or by client specifications.

Samples have been subcontracted to the following laboratory(ies). The subcontractor's analytical report is attached:

RSA Geolab, LLC
Union, NJ

Columbia Analytical Services

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Navy Facilities Engineering Service Center Approved
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158
West Virginia ID # 292

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1629
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-028.0-20110119		
Lab Code:	R1100415-001	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	77.6		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1629
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-028.0-20110119		
Lab Code:	R1100415-001	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**1410**		mg/Kg	540	140	1	NA	1/26/11 14:15	
Fraction Organic Carbon	Calculation	**0.00141**		NONE	0.0003		1	NA		

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1646
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-034.0-20110119		
Lab Code:	R1100415-002	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**83.1**		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1646
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-034.0-20110119		
Lab Code:	R1100415-002	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**440**		mg/Kg	380	100	1	NA	1/26/11 14:15	
Fraction Organic Carbon	Calculation	**0.00044**		NONE	0.0003		1	NA		

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1657
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-047.0-20110119		
Lab Code:	R1100415-003	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	74.9		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1657
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-047.0-20110119		
Lab Code:	R1100415-003	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**3070**		mg/Kg	610	160	1	NA	1/27/11 12:00	
Fraction Organic Carbon	Calculation	**0.00307**		NONE	0.0003		1	NA		

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1720
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-053.0-20110119		
Lab Code:	R1100415-004	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	77.4		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1720
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1003-053.0-20110119		
Lab Code:	R1100415-004	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**650**		mg/Kg	380	100	1	NA	1/27/11 12:00	
Fraction Organic Carbon	Calculation	**0.00065**		NONE	0.0003		1	NA		

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1629
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-028.0-20110119		
Lab Code:	R1100415-005	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**78.3**		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1629
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-028.0-20110119		
Lab Code:	R1100415-005	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**1110**		mg/Kg	350	90	1	NA	1/27/11 12:00	
Fraction Organic Carbon	Calculation	**0.00111**		NONE	0.0003		1	NA		

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1646
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-034.0-20110119		
Lab Code:	R1100415-006	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**81.1**		Percent	1.0	1	NA	1/26/11 15:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1646
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-034.0-20110119		
Lab Code:	R1100415-006	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**990**		mg/Kg	440	110	1	NA	1/27/11 12:00	
Fraction Organic Carbon	Calculation	**0.00099**		NONE	0.0003		1	NA		

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1657
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-047.0-20110119		
Lab Code:	R1100415-007	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.2**		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1657
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-047.0-20110119		
Lab Code:	R1100415-007	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**2630**		mg/Kg	440	110	1	NA	1/27/11 12:00	
Fraction Organic Carbon	Calculation	**0.00263**		NONE	0.0003		1	NA		

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1720
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-053.0-20110119		
Lab Code:	R1100415-008	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	76.9		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	1/19/11 1720
Sample Matrix:	Soil	**Date Received:**	1/21/11
Sample Name:	LC34-SB1002-053.0-20110119		
Lab Code:	R1100415-008	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	**860**		mg/Kg	370	100	1	NA	1/27/11 12:00	
Fraction Organic Carbon	Calculation	**0.00086**		NONE	0.0003		1	NA		

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1100415-MB1	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1100415-MB1	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	300	U	mg/Kg	300	80	1	NA	1/26/11 14:15	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1100415-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100415
Project:	ESTCP PED LC34	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1100415-MB2	**Basis:**	Dry per method

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	300	U	mg/Kg	300	80	1	NA	1/27/11 12:00	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34
Sample Matrix: Soil

Service Request: R1100415
Date Analyzed: 1/26/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry per method

		Lab Control Sample R1100415-LCS1			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	1730	2000	86	75 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34
Sample Matrix: Soil

Service Request: R1100415
Date Analyzed: 1/27/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry per method

Analyte Name	Method	Lab Control Sample R1100415-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC)	EPA LKahn 7-27-1988	2020	2000	101	75 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services
800.695.7222
www.caslab.com

Client: GeoSyntec

CHAIN of CUSTODY

Page 1 of 2

Project: ESTCP PED LC34

Method of Shipment

Project Manager: Cory REPTA

Telephone No.: 321-795-1303

Fax No.: —

Special Detection Limit/Reporting

Sample I.D.	Lab Sample No.	No. of Containers	Matrix: Soil	Water	Air	Other	Prsv.: Yes	No	Sampling Date	Sampling Time	TOL LLOYD KAHN	GRAIN SIZE	% SOLIDS	Turn Around Time (working days)
LC34-SB1003-028.0-20110119	-001	2	X						1/19	1629	1	1		10
LC34-SB1003-034.0-20110119	-002	2	X							1646	1		1	
LC34-SB1003-047.0-20110119	-003	2	X							1657	1		1	
LC34-SB1003-053.0-20110119	-004	2	X							1720	1		1	
LC34-SB1002-028.0-20110119	-005	3	X							1629	1	1	1	
LC34-SB1002-034.0-20110119	-006	3	X							1646	1	1	1	
LC34-SB1002-047.0-20110119	-007	3	X							1657	1	1	1	10

MARKS: HOLD % solids samples. Hold grain size SD 1003-028.0-20110119

Sample Received Intact: Yes No

Temperature received: Ice No ice

	Date	Time		
Relinq. by sampler (Sign & Print Name): A DeSalvo	1/20	0615	Received by (Sign & Print Name): Daniel Ward	1121/11 / 0954
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by laboratory	Date Time

Lab Work No.

2008

R1100415
GeoSyntec Consultants
ESTCP PED LC34

Columbia Analytical Services™

800.695.7222
www.caslab.com

Client: GEOSYNTEC

CHAIN of CUSTODY

Page 2 of 2

Project: ESTCP PED LC34

Method of Shipment

Project Manager: CORY REPTA

Telephone No.: 321-795-1303

Fax No.: -

Special Detection Limit/Reporting

Sample I.D.	Lab Sample No.	No. of Containers	Matrix: Soil	Water	Air	Other	Prsv.: Yes	No	Sampling Date	Sampling Time	TOC LLOYD KAHN	GRAIN SIZE	% SOLIDS	Turn Around Time (working days)
LC34-SB1002-0530-20110119		3	X						1/19	1720	1	1	1	10

MARKS: HOLD % solids samples

Sample Received Intact: Yes No

Temperature received: Ice No ice

	Date	Time		
Relinq. by sampler (Sign & Print Name)	1/20	0615	Received by (Sign & Print Name) Daniel Ward	1/21/11 / 0954
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by laboratory	Date Time

Lab Work No.

R1100415
GeoSyntec Consultants
ESTCP PED LC34

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1100445.

Cooler received on 1/21/11 by: DPW **COURIER:** CAS UPS ~~FEDEX~~ VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	~~NO~~	
2.	Were custody papers properly filled out (ink, signed, etc.)?	~~YES~~	NO	
3.	Did all bottles arrive in good condition (unbroken)?	~~YES~~	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	~~N/A~~
5.	Were ~~Ice~~ or **Ice packs** present?	~~YES~~	NO	
6.	Where did the bottles originate?	~~CAS/ROC~~	CLIENT	

7. Temperature of cooler(s) upon receipt:	4.3°				
Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 1/21/11 / 1000

Thermometer ID: IR GUN#3 / IR ~~GUN#4~~ Reading From: ~~Temp Blank~~ / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 1/21/11

Cooler Breakdown: Date: 1/21/11 Time: 1405 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	~~YES~~	NO	
2.	Did all bottle labels and tags agree with custody papers?	~~YES~~	NO	
3.	Were correct containers used for the tests indicated?	~~YES~~	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	~~N/A~~

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 112410-1VV, 092710-1MM

Other Comments:

PC Secondary Review: KB 1/21/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

1017 Greeley Ave North
Union, NJ 07083
908-964-0786
Fax: 908-964-5470
www.rsageolab.com

RSA Geolab, LLC

Client:
Karen Bunker
Columbia Analytical Services, INC
1 Mustard Street
Suite 250
Rochester, NY 14609

01-30-2011

Dear Karen,

Thank you for consulting with RSA Geolab, LLC for your Geotechnical Testing needs. RSA is pleased to provide you with this final report for laboratory testing.

- Sieve Analysis (ASTM D422) LC-34-SB1002-028.0-20110119
- Sieve Analysis (ASTM D422) LC-34-SB1002-034.0-20110119
- Sieve Analysis (ASTM D422) LC-34-SB1002-047.0-20110119
- Sieve Analysis (ASTM D422) LC-34-SB1002-053.0-20110119

Sincerely,

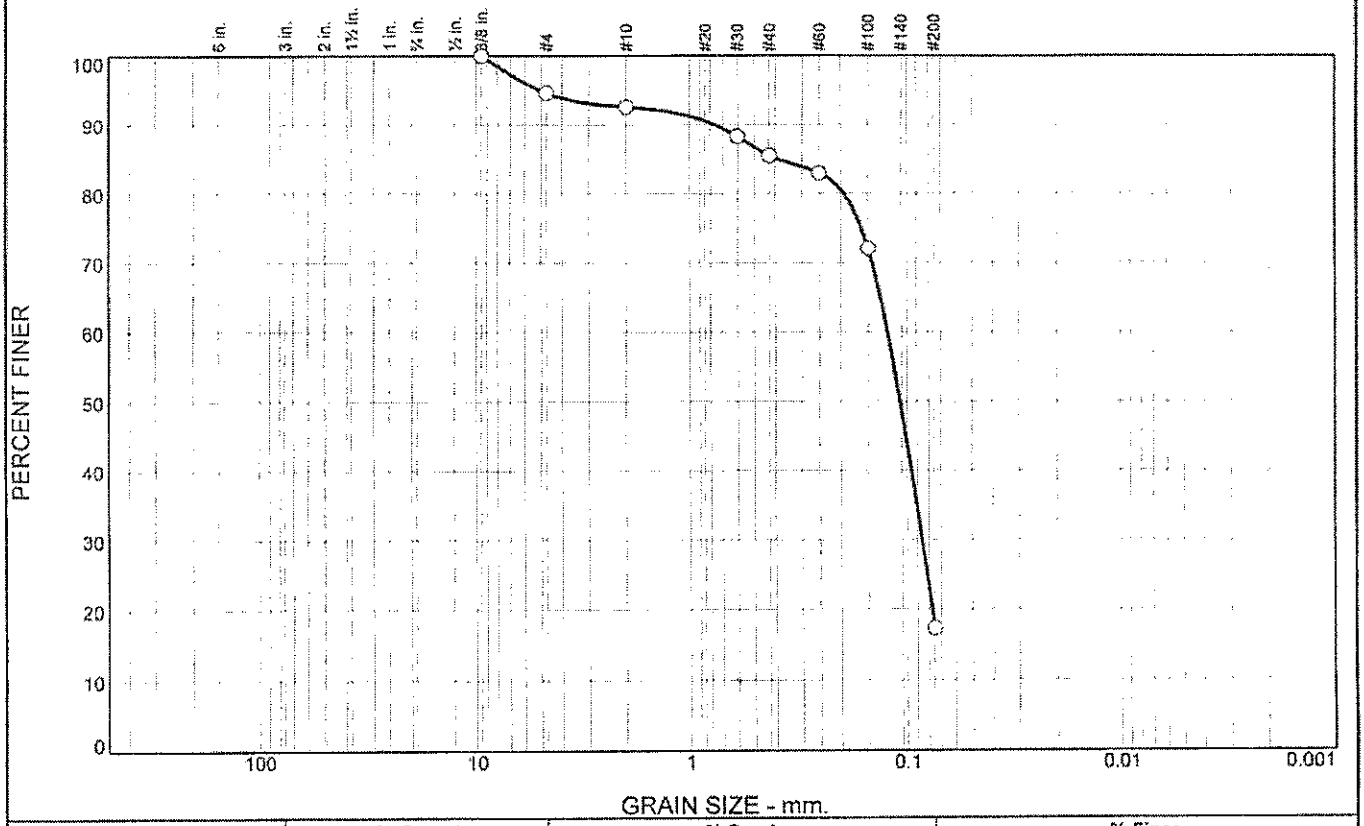
Rasheed S. Ahmed
President/Lab Director
RSA Geolab, LLC

RSA Geolab, LLC
1017 Greeley Ave N
Union, NJ 07083
P: 908-964-0786
F: 908-964-5470
www.rsageolab.com
geolab13@yahoo.com

SAMPLE ID	#4	#10	#30	#60	#200	M.C. %	REMARKS/DESCRIPTION
LC-34-SB1002-028.0-20110119	93.3	92.6	88.3	83	17.4	26.07	Light grey mixed sand w/ pieces of shell
LC-34-SB1002-034.0-20110119	94.6	83.5	67.1	45.2	7	21.21	Light grey mixed sand w/ pieces of shell
LC-34-SB1002-047.0-20110119	93.4	92.2	89.3	85.4	47	38.8	Light grey mixed sand w/ pieces of shell
LC-34-SB1002-053.0-20110119	94	86.4	77.2	66	12.3	25	Light grey mixed sand w/ pieces of shell

QC SUMMARY
CLIENT: COLUMBIA ANALYTICAL SERVICES, INC.
CONTACT: KAREN BUNKER
PROJECT NUMBER: 794

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.4	2.0	7.1	68.1	17.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	94.6		
#10	92.6		
#30	88.3		
#40	85.5		
#60	83.0		
#100	72.1		
#200	17.4		

* (no specification provided)

Material Description

LC34-SB1002-028.0-20110119

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.3895 D_{60}= 0.1224 D_{50}= 0.1075
D_{30}= 0.0857 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

MOISTURE CONTENT: 26.07 LIGHT GREY MIX SAND PIECES OF SHELL

Date: 01/30/2011

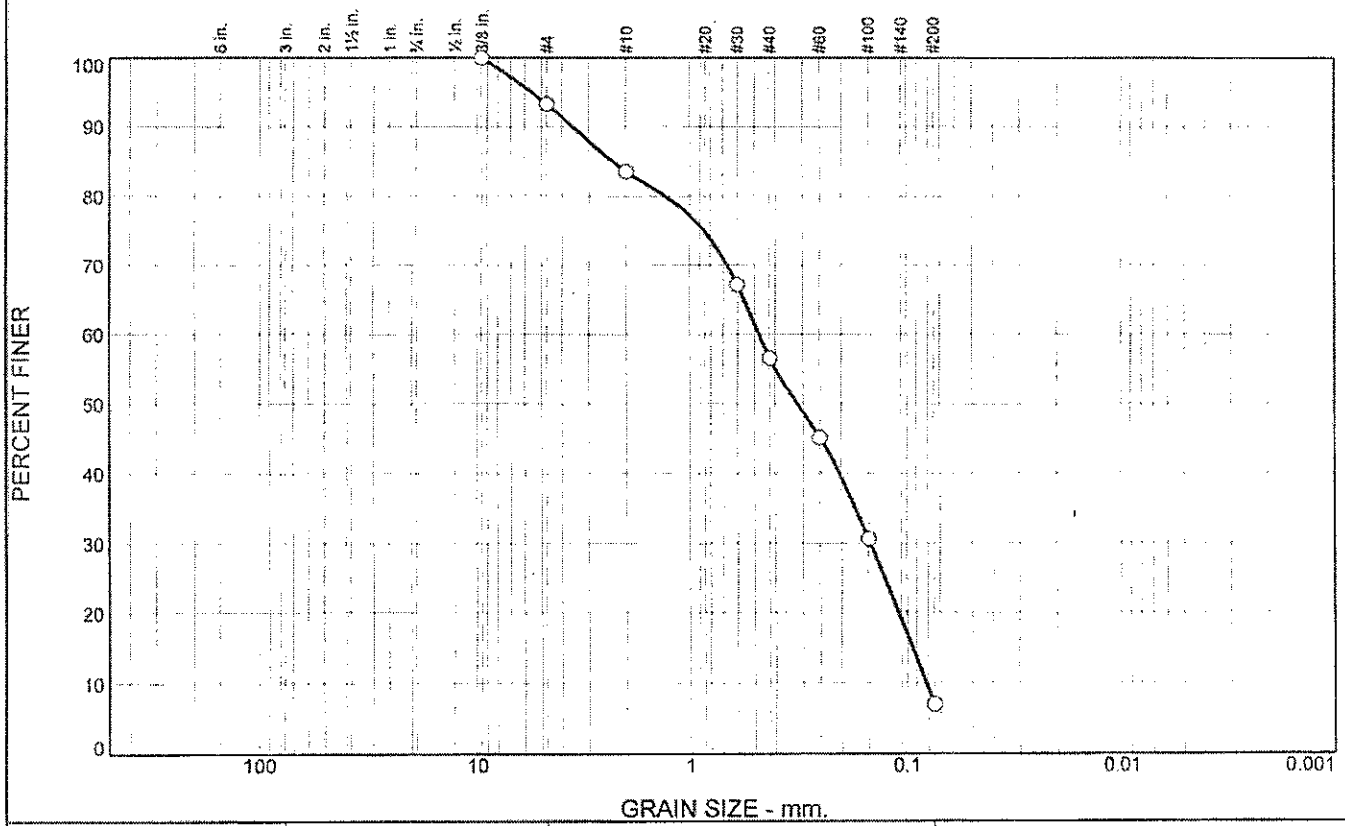
RSA Geolab, LLC
UNION, NJ

Client: Columbia Analytical Services
Project: R-110415

Project No: 794 Date: 1/30/2011

Tested By: RSA Checked By: RSA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.7	9.8	27.0	49.5	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	93.3		
#10	83.5		
#30	67.1		
#40	56.5		
#60	45.2		
#100	30.6		
#200	7.0		

* (no specification provided)

Material Description

LC34-SB1002-034.0-20110119
LIGHT GREY MIX SAND PIECED OF SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 2.3221 D_{60}= 0.4775 D_{50}= 0.3170
D_{30}= 0.1471 D_{15}= 0.0943 D_{10}= 0.0817
C_u= 5.84 C_c= 0.55

Classification

USCS= AASHTO=

Remarks

MOISTURE CONTENT 21.21

Date: 1/30/2011

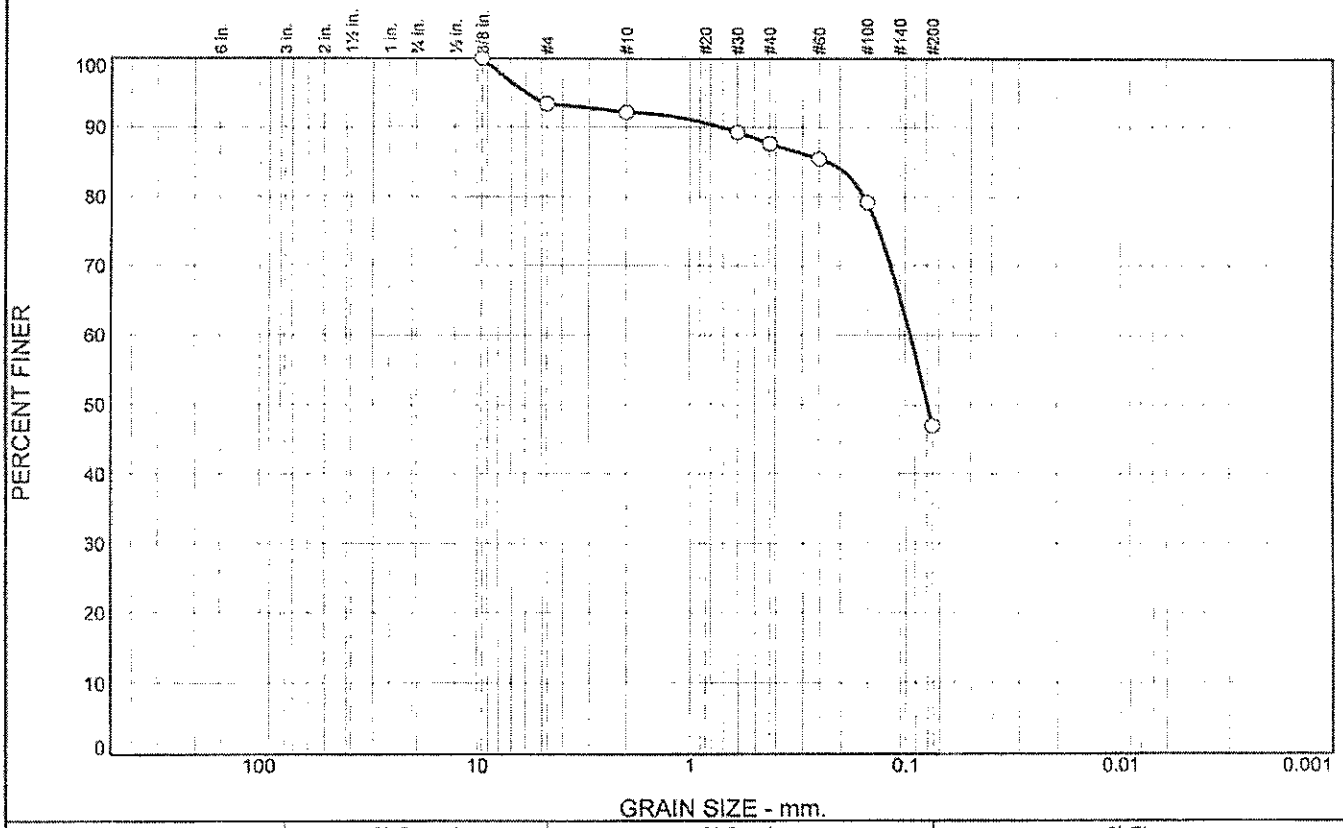
RSA Geolab, LLC
UNION, NJ

Client: Columbia Analytical Services
Project: R-110415

Project No: 794 Date: 1/30/2011

Tested By: RSA Checked By: RSA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.6	1.2	4.6	40.6	47.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	93.4		
#10	92.2		
#30	89.3		
#40	87.6		
#60	85.4		
#100	79.2		
#200	47.0		

* (no specification provided)

Material Description

LC34-SB1002-047.0-20110119
LIGHT GREY MIX SAND PIECES OF SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.2297 D_{60}= 0.0950 D_{50}= 0.0791
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

MOISTURE CONTENT: 38.80

Date: 1/30/2011

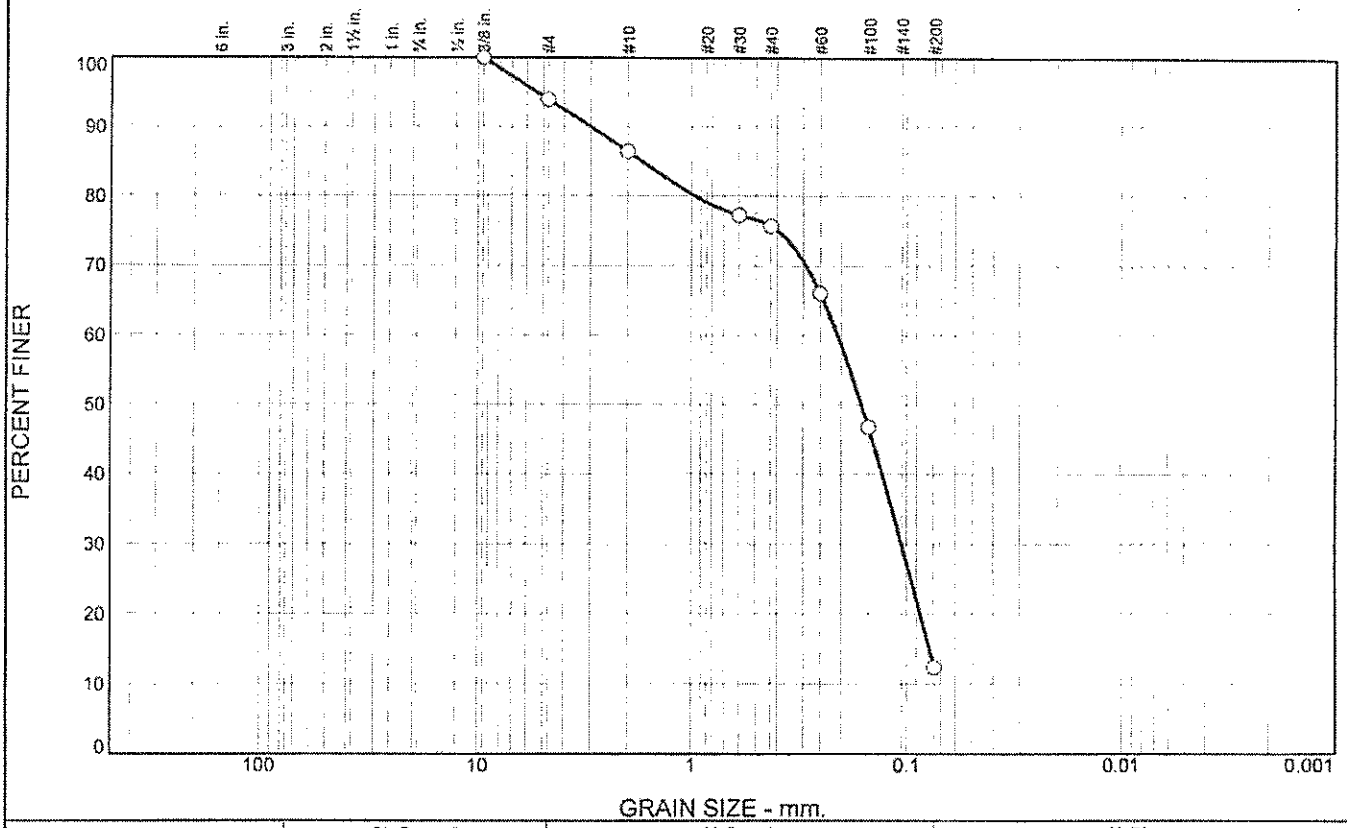
RSA Geolab, LLC

UNION, NJ

Client: Columbia Analytical Services
Project: R-110415
Project No: 794 **Date:** 1/30/2011

Tested By: RSA **Checked By:** RSA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.0	7.6	10.7	63.4	12.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	94.0		
#10	86.4		
#30	77.2		
#40	75.7		
#60	66.0		
#100	46.8		
#200	12.3		

* (no specification provided)

Material Description

LC34-SB1002-053.0-20110119
LIGHT GREY MIX SAND PIECES OF SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.7119 D_{60}= 0.2075 D_{50}= 0.1613
D_{30}= 0.1057 D_{15}= 0.0789 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

MOISTURE CONTENT: 25.0

Date: 1/30/2011

RSA Geolab, LLC
UNION, NJ

Client: Columbia Analytical Services
Project: R-110415

Project No: 794 Date: 1/30/2011

Tested By: RSA Checked By: RSA

KB LABS, INC.
25132 SW 1st Ave
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Email: info@kbmobilelabs.com

January 24, 2011

Rebecca DaPrato
GeoSyntec Consultants
6770 S. Washington Ave, Suite 3
Titusville, FL 32780

RE: NASA CCAFS LC34, KSC, FL - Final Data Report
KB Labs Project # 11-5

Dear Ms. DaPrato:

Enclosed is the final report of the on-site analysis performed by KB Labs, Inc. at the above referenced site. Samples were collected and analyzed on January 19, 2011. Included are a brief project narrative, data report narrative, tables listing quality control results, final analytical results, and sample chain-of-custody form.

KB Labs' mobile laboratories have been inspected by the FDOH Bureau of Laboratories and are NELAP Certified as of April 1, 2003. Our personnel, methodology, proficiency testing, and quality assurance requirements comply with the guidelines of Chapter 62-160 of the Florida Administrative Code and with the consensus standards adopted at the National Environmental Laboratory Accreditation Conference (NELAC). Data for the site referenced above were determined in accordance with published procedures under Test Methods for Evaluating Solid Waste (EPA SW-846, Update III Revised May 1997). Unless otherwise indicated on the quality control narrative accompanying the data report, the quality assurance and quality control procedures performed in conjunction with analysis of groundwater samples demonstrated that the reported data met our requirements for accuracy and precision under NELAC Standards.

If you have any questions, please do not hesitate to call me or Kelly Bergdoll, President of KB Labs, at (352) 367-0073.

Sincerely,

KB Labs, Inc.

Todd Romero
Director of Operations

"KB Labs is a small, woman-owned business enterprise."

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PROJECT NARRATIVE

Project Scope

On January 19, 2011, a total of 19 soil samples were analyzed for GeoSyntec Consultants at NASA CCAFS LC34, KSC, FL. The samples were analyzed for vinyl chloride, 1,1-dichloroethene, cis- and trans-1, 2-dichloroethene, trichloroethene, tetrachloroethene, and n-butyl acetate.

NELAP Certification

KB Mobile Labs Unit KB3: FDOH NELAP Certification Number E82816

Note: KB Labs is not NELAC certified for N-butyl actetate. Data should be consider screening level only.

Analytical Procedure

All samples were analyzed using SW846 Method 5030/8260 for waters. Ten (10) milliliters (mL) of water or air (air samples) were purged with helium and the volatile organic compounds (VOCs) were collected on a solid-phase adsorption trap. The adsorption trap was heated and back-purged with helium. The components were then separated by capillary column gas chromatography and measured with a mass spectrometer (GC/MS) operated in the electron impact full-scan mode. The individual VOCs in the samples were measured against corresponding VOC standards.

The soil samples were analyzed using SW846 Method 5030/8260. One (1) gram (g) of soil sample was added to 10 mL of laboratory reagent water, heated and analyzed like a water sample as described above.

Unless otherwise indicated, soil data is calculated based on the matrix received (i.e. wet weight basis).

Analytical Results

Laboratory results were provided to the client on an as-completed or next-day basis. Final results of the on-site analyses are provided in a hardcopy report. The data produced and reported in the field has been reviewed and approved for this final report by the Director of Operations for KB Labs.

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Uncertainty of Reported Values

All measurement data presented in this report are subject to a degree of uncertainty and the degree of uncertainty varies with each compound of interest. KB Labs estimates the uncertainty of each measurement using a statistical evaluation of the standard deviation from the mean percent recovery of a number of trials of a given measurement. More specifically, KB Labs maintains historical percent recovery control limits at the 99% confidence level for each analyte of interest. These are calculated as ± 3 times the standard deviation from the mean of historical measurements of the percent recovery of spikes of the analytes of interest into actual and control sample matrices. For example, if the lower and upper percent recovery control limits for a specific analyte of interest have been determined to be 70 and 100 percent respectively, a reported value of 10.0 ug/L will be with 99% confidence 7.0 to 13.0 ug/L.For more information about KB Labs estimation of uncertainty, contact KB Labs' quality assurance officer and/or request a copy of KB Labs' SOP for determining measurement uncertainty.

Quality Control (QC) Data

Surrogate Recoveries – Table 1 lists the daily analytical sequence and percent recovery results for surrogate compounds, which were added to all analyses. Four (4) surrogate compounds were added to each analysis in order to continually monitor general method performance.

VOC Spike Recoveries – Table 2 lists the percent recovery results for matrix spike and laboratory control samples. A known amount of each target compound was added to selected field samples and to laboratory reagent water in order to monitor the performance of each of the target compounds in the actual matrix and in laboratory reagent water.

Method Blanks – Daily analysis of laboratory reagent water samples was performed in order to monitor the cleanliness of the analytical system.

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DATA REPORT NARRATIVE

1. All sample data has been reviewed and, if required, updated in the Final Data Report for rounding and significant figures.

2. Sample ID LC34-SB1001-024.0-20110119 has an "L" qualifier for c-1, 2-dichloroethene indicating the Concentration exceeded Calibration range. Sample was reanalyzed later in the run sequence at medium-level. Data inconsistent with original run. Original run considered best reportable analytical data.

3. As per NASA client request for diluted samples between the lab RL and MDL are reported with FDEP Data Qualifier "I".

4. Reporting limits for sample ID SB1004-037.0-20110119 adjusted to correct dilution level.

KB LABS, INC.

Table 1: Analytical Run Sequence/Surrogate Percent Recoveries

Client: GeoSyntec Consultants	**Driller/Sampler**: GeoSyntec Consultants	**Analyst:** Glenn Jackson
Site: NASA CCAFS LC34	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 11-5
On-site Dates: 1/19/11	**Client Project Manager**: Rebecca DaPrato	**Matrix:** Soil

Sample ID	Date of Analysis	Surrogate % Recovery				Surrogate Control Limits			
		S1*	S2*	S3*	S4*	S1*	S2*	S3*	S4*
VSTD 20	01/19/11	69	68	99	105	< LCL	< LCL	Pass	Pass
RSTD 20	01/19/11	98	119	102	105	Pass	Pass	Pass	Pass
BLANK	01/19/11	104	115	101	98	Pass	Pass	Pass	Pass
LC34-SB1001-024.0	01/19/11	102	108	104	104	Pass	Pass	Pass	Pass
LC34-SB1001-035.5	01/19/11	107	114	100	100	Pass	Pass	Pass	Pass
LC34-SB1001-041.0	01/19/11	105	113	101	98	Pass	Pass	Pass	Pass
LC34-SB1001-044.5.	01/19/11	108	120	100	103	Pass	Pass	Pass	Pass
LC34-SB1002-044.5	01/19/11	103	110	103	98	Pass	Pass	Pass	Pass
LC34-SB1002-046.5	01/19/11	108	114	102	100	Pass	Pass	Pass	Pass
LC34-SB1002-049.5	01/19/11	106	115	101	99	Pass	Pass	Pass	Pass
LC34-SB1002-055.0	01/19/11	109	115	101	99	Pass	Pass	Pass	Pass
LC34-SB1003-037.5	01/19/11	108	124	99	99	Pass	Pass	Pass	Pass
LC34-SB1003-043.0	01/19/11	108	113	101	101	Pass	Pass	Pass	Pass
LC34-SB1003-044.0	01/19/11	107	114	100	97	Pass	Pass	Pass	Pass
LC34-SB1003-046.0	01/19/11	109	118	99	94	Pass	Pass	Pass	Pass
LC34-SB1003-049.5	01/19/11	106	120	101	98	Pass	Pass	Pass	Pass
LC34-SB1004-034.5	01/19/11	110	120	98	99	Pass	Pass	Pass	Pass
LC34-SB1004-037.0	01/19/11	108	116	100	95	Pass	Pass	Pass	Pass
LC34-SB1004-043.0	01/19/11	109	118	98	97	Pass	Pass	Pass	Pass
LC34-SB1004-045.0	01/19/11	106	113	98	101	Pass	Pass	Pass	Pass
LC34-SB1004-046.5	01/19/11	107	116	98	95	Pass	Pass	Pass	Pass
LC34-SB1004-050.0	01/19/11	109	118	99	98	Pass	Pass	Pass	Pass
LC34-SB1001-024.0	01/19/11	109	118	97	97	Pass	Pass	Pass	Pass
LC34-SB1002-055.0 MS	01/19/11	100	107	101	104	Pass	Pass	Pass	Pass
LC34-SB1002-055.0 MSD	01/19/11	103	115	100	102	Pass	Pass	Pass	Pass
VSTD 20	01/19/11	103	117	100	103	Pass	Pass	Pass	Pass
Comments:	Although some surrogates may be out of the control percent recovery range, other supporting QC, such as matrix spikes, matrix spike duplicates, method blanks, and laboratory control samples, are performed by KB Labs to further validate reported data.								

***Surrogate Compounds:**
S1 = Dibromofluoromethane (84% - 121%)
S2 = 1,2- Dichloroethane-D4 (69% - 133%)
S3 = Toluene-D8 (87% - 111%)
S4 = 4-Bromofluorobenzene (76% - 125%)

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: GeoSyntec Consultants	**Driller/Sampler**: GeoSyntec Consultants	**Analyst:** Glenn Jackson
Site: NASA CCAFS LC34	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 11-5
Onsite Dates: 1/19/11	**Client Project Manager:** Rebecca DaPrato	**Matrix**: Soil

Matrix Spike/Matrix Spike Duplicate (MS/MSD):

Samples: SB1002 55' **Date of Analysis:** 1/19/2011

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Vinyl Chloride	46	156	20	103	96	7	Pass	Pass	Pass
1,1-Dichloroethene	47	150	20	117	108	8	Pass	Pass	Pass
Trans-1,2-Dichloroethene	61	135	20	112	104	7	Pass	Pass	Pass
Cis-1,2-Dichloroethene	62	141	20	112	106	6	Pass	Pass	Pass
Trichloroethene	60	127	20	110	102	7	Pass	Pass	Pass
Tetrachloroethene	50	132	20	107	99	8	Pass	Pass	Pass
n-Butyl Actetate	70	130	20	112	104	8	Pass	Pass	Pass

Note: Control Limits are based on a semi-annual historical evaluation of mobile unit and method guidelines.

Laboratory Control Spikes (LCS):

Samples: LCS 1 **Date of Analysis:** 1/19/2011

Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower		Upper	LCS#1			LCS#1		
Vinyl Chloride	52	to	150	108			Pass		
1,1-Dichloroethene	58	to	132	117			Pass		
Trans-1,2-Dichloroethene	54	to	140	116			Pass		
Cis-1,2-Dichloroethene	67	to	126	118			Pass		
Trichloroethene	68	to	119	111			Pass		
Tetrachloroethene	58	to	127	111			Pass		
n-Butyl Acetate	70	to	130	116			Pass		

Note: Control Limits are based on a semi-annual historical evaluation of mobile unit and method guidelines.

KB LABS, INC.

Final Data Report

Project Number : 11-5

NASA CCAFS LC34

KSC, FL

Prepared for: GeoSyntec Consultants

Samplel ID	Analysis Date	Matrix	Dilution Factor	Vinyl chloride	1,1-Dichloroethene	trans-1,2-Dichloroethene	cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene	n-Butyl Acetate
Soil MDL (mg/kg)				**0.0031**	**0.0039**	**0.0045**	**0.0051**	**0.0041**	**0.0034**	**NA**
LC34-SB1001-024.0-20110119	1/19/11	Soil	1	**0.048**	<0.010	**0.026**	**1.4 L**	**0.019**	<0.010	<0.050
LC34-SB1001-035.5-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**2.0**	**3.2**	<0.10	<0.50
LC34-SB1001-041.0-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**4.2**	**2.6**	<0.10	<0.50
LC34-SB1001-044.5-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**1.4**	**5.7**	<0.10	<0.50
LC34-SB1002-044.5-20110119	1/19/11	Soil	1	<0.010	<0.010	<0.010	**0.058**	<0.010	<0.010	<0.050
LC34-SB1002-046.5-20110119	1/19/11	Soil	1	<0.010	<0.010	<0.010	**0.55**	**0.030**	<0.010	<0.050
LC34-SB1002-049.5-20110119	1/19/11	Soil	1	<0.010	<0.010	<0.010	**0.015**	<0.010	<0.010	<0.050
LC34-SB1002-055.0-20110119	1/19/11	Soil	1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050
LC34-SB1003-037.5-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**7.0**	**3.7**	<0.10	<0.50
LC34-SB1003-043.0-20110119	1/19/11	Soil	5m	<0.50	<0.50	<0.50	**0.36 I**	**7.3**	<0.50	<2.5
LC34-SB1003-044.0-20110119	1/19/11	Soil	5m	<0.50	<0.50	<0.50	**0.76**	**22**	<0.50	<2.5
LC34-SB1003-046.0-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**1.1**	**6.8**	<0.10	<0.50
LC34-SB1003-049.5-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**2.0**	**7.2**	<0.10	<0.50

Reporting units for waters are ug/L and for soils are mg/kg.
m = medium level soil analysis

KB LABS, INC.

Final Data Report

Project Number : 11-5

NASA CCAFS LC34

KSC, FL

Prepared for: GeoSyntec Consultants

Samplel ID	Analysis Date	Matrix	Dilution Factor	Vinyl chloride	1,1-Dichloroethene	trans-1,2-Dichloroethene	cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene	n-Butyl Acetate
Soil MDL (mg/kg)				**0.0031**	**0.0039**	**0.0045**	**0.0051**	**0.0041**	**0.0034**	**NA**
LC34-SB1004-034.5-20110119	1/19/11	Soil	1m	**0.050 I**	**0.054 I**	**0.10**	**2.0**	**0.77**	**0.042 I**	<0.50
LC34-SB1004-037.0-20110119	1/19/11	Soil	5m	**0.22 I**	<0.50	<0.50	**15**	<0.50	<0.50	<2.5
LC34-SB1004-043.0-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**0.98**	**3.4**	<0.10	<0.50
LC34-SB1004-045.0-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**3.8**	**5.4**	<0.10	<0.50
LC34-SB1004-046.5-20110119	1/19/11	Soil	1m	<0.10	<0.10	<0.10	**2.0**	**0.35**	<0.10	<0.50
LC34-SB1004-050.0-20110119	1/19/11	Soil	1	<0.010	<0.010	<0.010	**0.022**	<0.010	<0.010	<0.050

Reporting units for waters are ug/L and for soils are mg/kg.
m = medium level soil analysis

CHAIN-OF-CUSTODY RECORD

Mobile Laboratory Services

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Newberry, FL 32669
TEL (352) 472-5830
FAX (352) 472-5832

☐ 200 Quade Drive
Cary, NC 27513
TEL (919) 678-0030

MOBILE UNIT # KB3

CLIENT NAME: Geosyntec | PROJECT NAME & ADDRESS: LC34 KSC, FL

SAMPLERS | CONTACT PERSON | BATCH # (Lab Use Only)

PRESERVATION: C Chilled; H HCL; Ot Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER KB3*011911	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES (IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS)	COMMENT / SAMPLE PRE FIX
SB1001 24'	1/19/11	0905			1/19/11	1145		So	1	✓	
35.5'		0930									
41'		0948									
44.5		1009									
SB1002 44.5		1016									
46.5		1030									
49.5		1039									
53		1046									
SB1003 32.5		1310				1312					
43		1324				1330					
44		1330				1330					
46		1354				1355					
49.5		1352				1353					
SB1004 34.5		1514				1520					
↓ 37.0		1530				1545					

	Date / Time		Date / Time	
Precleaned Containers Relinquished by: *(Signature)*		Received by: *(Signature)*	1/19/11	**Remarks and Observations**
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time	

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

Mobile Laboratory Services

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☐ 200 Quade Drive
Cary, NC 27513
TEL (919) 678-0030

MOBILE UNIT # K53

CLIENT NAME: Geosyntec

PROJECT NAME & ADDRESS: LC 34 1550 FL

SAMPLERS

CONTACT PERSON

BATCH # (Lab Use Only)

SAMPLE FIELD ID \ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	COMMENT / SAMPLE PRE FIX
SB1004-0430 K53*011911	1/19/11	1543			1/19/11	1545		SO	1	✓	
0445.0	↓	1553			↓	1600		↓	↓	↓	
0465		1555				↓					
0500		1556									

IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS

PRESERVATION
C Chilled
H HCL
Ot Other (see Remarks)

	Date / Time		Date / Time	
Precleaned Containers Relinquished by: *(Signature)*		Received by: *(Signature)*	1/19/11	**Remarks and Observations**
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time	

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

Columbia Analytical Services™ 1 Mustard Street, Suite 250 | Rochester, NY 14609 | 585-288-5380 | 585-288-8475 fax | www.caslab.com

February 17, 2011 Service Request No: R1100627

Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34/ TR0272

Dear Cory:

Enclosed are the results of the sample(s) submitted to our laboratory on February 2, 2011. For your reference, these analyses have been assigned our service request number **R1100627**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	2/2/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Seventeen (17) water samples including one (1) Trip Blank were collected by the client on 2/1/11 and were received for analysis at Columbia Analytical Services on 2/2/11 via a national courier. The samples were received at a cooler temperature of 2°C, within the 0-6°C guidelines.

Volatile Organic Compounds by EPA Method 8260C

Water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except the following:
N-Butyl acetate %Differences (%D) was out at 24.6%D (criteria is ±20%) on the 2/3/11 CCV
n-Butanol %D was -22.1%D on the 2/4/11 CCV
n-Butanol %D was -29.7%D on the 2/8/11 CCV.
When CCV %D criteria are not met, it may indicate some bias in the quantitation for that target compound in the associated samples. These compounds were not detected in all samples associated with the outlying CCV's, therefore data was acceptable.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits except for Dichlorodifluoromethane on the 2/4/11 analytical run which was outside limits, high. The recovery has been flagged as "*". No data was affected.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The hits are flagged as "E", estimated. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". Both sets of data are included in the report.

Samples were analyzed within 7 days from collection, the holding time for unpreserved vials.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burke **Date** 2/17/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1100627

Lab ID	Client ID
R1100627-001	LC34-BW0003A-024.5-20110201
R1100627-002	LC34-BW0003B-031.5-20110201
R1100627-003	LC34-BW0003E-052.5-20110201
R1100627-004	LC34-BW0003F-059.5-20110201
R1100627-005	TRIP BLANK
R1100627-006	LC34-BW0002A-024.5-20110201
R1100627-007	LC34-BW0002B-031.5-20110201
R1100627-008	LC34-BW0002C-038.5-20110201
R1100627-009	LC34-BW0002D-045.5-20110201
R1100627-010	LC34-BW0002E-052.5-20110201
R1100627-011	LC34-BW0002F-059.5-20110201
R1100627-012	LC34-BW0001A-024.5-20110201
R1100627-013	LC34-BW0001B-031.5-20110201
R1100627-014	LC34-BW0001C-038.5-20110201
R1100627-015	LC34-BW0001D-045.5-20110201
R1100627-016	LC34-BW0001E-052.5-20110201
R1100627-017	LC34-BW0001F-059.5-20110201

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Navy Facilities Engineering Service Center Approved
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158
West Virginia ID # 292

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1511
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 18:46
Sample Name:	LC34-BW0003A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0399.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	60	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	60	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	60	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000	U	1000	80	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	60	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	
106-93-4	1,2-Dibromoethane	1000	U	1000	60	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	80	
107-06-2	1,2-Dichloroethane	1000	U	1000	60	
78-87-5	1,2-Dichloropropane	1000	U	1000	140	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	72	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	68	
71-36-3	n-Butanol	10000	U	10000	1400	
78-93-3	2-Butanone (MEK)	2000	U	2000	200	
591-78-6	2-Hexanone	2000	U	2000	80	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	68	
67-64-1	Acetone	4000	U	4000	320	
71-43-2	Benzene	1000	U	1000	62	
75-27-4	Bromodichloromethane	1000	U	1000	82	
75-25-2	Bromoform	1000	U	1000	60	
74-83-9	Bromomethane	1000	U	1000	80	
75-15-0	Carbon Disulfide	2000	U	2000	70	
56-23-5	Carbon Tetrachloride	1000	U	1000	72	
108-90-7	Chlorobenzene	1000	U	1000	60	
75-00-3	Chloroethane	1000	U	1000	60	
67-66-3	Chloroform	1000	U	1000	60	
74-87-3	Chloromethane	1000	U	1000	92	
110-82-7	Cyclohexane	2000	U	2000	60	
124-48-1	Dibromochloromethane	1000	U	1000	60	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	
75-09-2	Dichloromethane	1000	U	1000	60	
100-41-4	Ethylbenzene	1000	U	1000	84	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1511
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 18:46
Sample Name:	LC34-BW0003A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0399.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	68	
79-20-9	Methyl Acetate	2000	U	2000	140	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	60	
108-87-2	Methylcyclohexane	2000	U	2000	60	
100-42-5	Styrene	1000	U	1000	70	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	84	
108-88-3	Toluene	1000	U	1000	60	
79-01-6	Trichloroethene (TCE)	1000	U	1000	60	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	60	
75-01-4	Vinyl Chloride	**13000**		1000	60	
156-59-2	cis-1,2-Dichloroethene	**37000**		1000	60	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	60	
179601-23-1	m,p-Xylenes	1000	U	1000	170	
123-86-4	n-Butyl Acetate	1000	U	1000	60	
95-47-6	o-Xylene	1000	U	1000	80	
156-60-5	trans-1,2-Dichloroethene	1000	U	1000	60	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	60	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/3/11 18:46	
Dibromofluoromethane	105	89-119	2/3/11 18:46	
Toluene-d8	110	87-121	2/3/11 18:46	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1552
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 19:16
Sample Name:	LC34-BW0003B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0400.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	30	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	30	
79-00-5	1,1,2-Trichloroethane	500	U	500	30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	37	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	
106-93-4	1,2-Dibromoethane	500	U	500	30	
95-50-1	1,2-Dichlorobenzene	500	U	500	40	
107-06-2	1,2-Dichloroethane	500	U	500	30	
78-87-5	1,2-Dichloropropane	500	U	500	66	
541-73-1	1,3-Dichlorobenzene	500	U	500	36	
106-46-7	1,4-Dichlorobenzene	500	U	500	34	
71-36-3	n-Butanol	5000	U	5000	670	
78-93-3	2-Butanone (MEK)	1000	U	1000	100	
591-78-6	2-Hexanone	1000	U	1000	40	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	34	
67-64-1	Acetone	2000	U	2000	160	
71-43-2	Benzene	500	U	500	31	
75-27-4	Bromodichloromethane	500	U	500	41	
75-25-2	Bromoform	500	U	500	30	
74-83-9	Bromomethane	500	U	500	40	
75-15-0	Carbon Disulfide	1000	U	1000	35	
56-23-5	Carbon Tetrachloride	500	U	500	36	
108-90-7	Chlorobenzene	500	U	500	30	
75-00-3	Chloroethane	500	U	500	30	
67-66-3	Chloroform	500	U	500	30	
74-87-3	Chloromethane	500	U	500	46	
110-82-7	Cyclohexane	1000	U	1000	30	
124-48-1	Dibromochloromethane	500	U	500	30	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	73	
75-09-2	Dichloromethane	500	U	500	30	
100-41-4	Ethylbenzene	500	U	500	42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1552
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 19:16
Sample Name:	LC34-BW0003B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0400.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	34	
79-20-9	Methyl Acetate	1000	U	1000	66	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	30	
108-87-2	Methylcyclohexane	1000	U	1000	30	
100-42-5	Styrene	500	U	500	35	
127-18-4	Tetrachloroethene (PCE)	500	U	500	42	
108-88-3	Toluene	500	U	500	30	
79-01-6	Trichloroethene (TCE)	500	U	500	30	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	30	
75-01-4	Vinyl Chloride	**5300**		500	30	
156-59-2	cis-1,2-Dichloroethene	**16000**		500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	30	
179601-23-1	m,p-Xylenes	500	U	500	81	
123-86-4	n-Butyl Acetate	500	U	500	30	
95-47-6	o-Xylene	500	U	500	40	
156-60-5	trans-1,2-Dichloroethene	500	U	500	30	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	2/3/11 19:16	
Dibromofluoromethane	106	89-119	2/3/11 19:16	
Toluene-d8	111	87-121	2/3/11 19:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1538
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 19:46
Sample Name:	LC34-BW0003E-052.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0401.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1538
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 19:46
Sample Name:	LC34-BW0003E-052.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0401.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	23		5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	2/3/11 19:46	
Dibromofluoromethane	106	89-119	2/3/11 19:46	
Toluene-d8	111	87-121	2/3/11 19:46	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 20:16
Sample Name:	LC34-BW0003F-059.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0402.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/3/11 20:16
Sample Name:	LC34-BW0003F-059.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0402.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/3/11 20:16	
Dibromofluoromethane	107	89-119	2/3/11 20:16	
Toluene-d8	112	87-121	2/3/11 20:16	

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1550
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 01:15
Sample Name:	TRIP BLANK	**Units:**	µg/L
Lab Code:	R1100627-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0412.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1550
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 01:15
Sample Name:	TRIP BLANK	**Units:**	µg/L
Lab Code:	R1100627-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0412.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/4/11 01:15	
Dibromofluoromethane	107	89-119	2/4/11 01:15	
Toluene-d8	110	87-121	2/4/11 01:15	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1419
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 01:45
Sample Name:	LC34-BW0002A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0413.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	60	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	60	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	60	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	64000	E	1000	80	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	
75-35-4	1,1-Dichloroethene (1,1-DCE)	170	J	1000	74	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	60	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	
106-93-4	1,2-Dibromoethane	1000	U	1000	60	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	80	
107-06-2	1,2-Dichloroethane	1000	U	1000	60	
78-87-5	1,2-Dichloropropane	1000	U	1000	140	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	72	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	68	
71-36-3	n-Butanol	10000	U	10000	1400	
78-93-3	2-Butanone (MEK)	2000	U	2000	200	
591-78-6	2-Hexanone	2000	U	2000	80	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	68	
67-64-1	Acetone	4000	U	4000	320	
71-43-2	Benzene	1000	U	1000	62	
75-27-4	Bromodichloromethane	1000	U	1000	82	
75-25-2	Bromoform	1000	U	1000	60	
74-83-9	Bromomethane	1000	U	1000	80	
75-15-0	Carbon Disulfide	2000	U	2000	70	
56-23-5	Carbon Tetrachloride	1000	U	1000	72	
108-90-7	Chlorobenzene	1000	U	1000	60	
75-00-3	Chloroethane	1000	U	1000	60	
67-66-3	Chloroform	1000	U	1000	60	
74-87-3	Chloromethane	1000	U	1000	92	
110-82-7	Cyclohexane	2000	U	2000	60	
124-48-1	Dibromochloromethane	1000	U	1000	60	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	
75-09-2	Dichloromethane	1000	U	1000	60	
100-41-4	Ethylbenzene	1000	U	1000	84	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1419
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 01:45
Sample Name:	LC34-BW0002A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0413.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	68	
79-20-9	Methyl Acetate	2000	U	2000	140	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	60	
108-87-2	Methylcyclohexane	2000	U	2000	60	
100-42-5	Styrene	1000	U	1000	70	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	84	
108-88-3	Toluene	1000	U	1000	60	
79-01-6	Trichloroethene (TCE)	**530**	J	1000	60	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	60	
75-01-4	Vinyl Chloride	**110**	J	1000	60	
156-59-2	cis-1,2-Dichloroethene	**36000**		1000	60	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	60	
179601-23-1	m,p-Xylenes	1000	U	1000	170	
123-86-4	n-Butyl Acetate	1000	U	1000	60	
95-47-6	o-Xylene	1000	U	1000	80	
156-60-5	trans-1,2-Dichloroethene	**690**	J	1000	60	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	60	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/4/11 01:45	
Dibromofluoromethane	107	89-119	2/4/11 01:45	
Toluene-d8	110	87-121	2/4/11 01:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1419
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 14:24
Sample Name:	LC34-BW0002A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-006	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0462.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	67000	D	2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	2500	U	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1419
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 14:24
Sample Name:	LC34-BW0002A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-006	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0462.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**550**	DJ	2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	2500	U	2500	150	
156-59-2	cis-1,2-Dichloroethene	**32000**	D	2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	**590**	DJ	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/8/11 14:24	
Dibromofluoromethane	107	89-119	2/8/11 14:24	
Toluene-d8	111	87-121	2/8/11 14:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1342
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 14:54
Sample Name:	LC34-BW0002B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0463.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	75	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	75	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	75	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**230**	J	1300	100	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	75	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	
106-93-4	1,2-Dibromoethane	1300	U	1300	75	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	100	
107-06-2	1,2-Dichloroethane	1300	U	1300	75	
78-87-5	1,2-Dichloropropane	1300	U	1300	170	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	90	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	85	
71-36-3	n-Butanol	13000	U	13000	1700	
78-93-3	2-Butanone (MEK)	2500	U	2500	250	
591-78-6	2-Hexanone	2500	U	2500	100	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	85	
67-64-1	Acetone	5000	U	5000	400	
71-43-2	Benzene	1300	U	1300	78	
75-27-4	Bromodichloromethane	1300	U	1300	110	
75-25-2	Bromoform	1300	U	1300	75	
74-83-9	Bromomethane	1300	U	1300	100	
75-15-0	Carbon Disulfide	2500	U	2500	88	
56-23-5	Carbon Tetrachloride	1300	U	1300	90	
108-90-7	Chlorobenzene	1300	U	1300	75	
75-00-3	Chloroethane	1300	U	1300	75	
67-66-3	Chloroform	1300	U	1300	75	
74-87-3	Chloromethane	1300	U	1300	120	
110-82-7	Cyclohexane	2500	U	2500	75	
124-48-1	Dibromochloromethane	1300	U	1300	75	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	
75-09-2	Dichloromethane	1300	U	1300	75	
100-41-4	Ethylbenzene	1300	U	1300	110	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1342
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 14:54
Sample Name:	LC34-BW0002B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0463.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	85	
79-20-9	Methyl Acetate	2500	U	2500	170	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	75	
108-87-2	Methylcyclohexane	2500	U	2500	75	
100-42-5	Styrene	1300	U	1300	88	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	110	
108-88-3	Toluene	1300	U	1300	75	
79-01-6	Trichloroethene (TCE)	**17000**		1300	75	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	75	
75-01-4	Vinyl Chloride	**230**	J	1300	75	
156-59-2	cis-1,2-Dichloroethene	**44000**		1300	75	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	75	
179601-23-1	m,p-Xylenes	1300	U	1300	210	
123-86-4	n-Butyl Acetate	1300	U	1300	75	
95-47-6	o-Xylene	1300	U	1300	100	
156-60-5	trans-1,2-Dichloroethene	**390**	J	1300	75	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	75	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/8/11 14:54	
Dibromofluoromethane	109	89-119	2/8/11 14:54	
Toluene-d8	111	87-121	2/8/11 14:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 02:44
Sample Name:	LC34-BW0002C-038.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0415.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	75	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	75	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	75	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1300	U	1300	100	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	75	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	
106-93-4	1,2-Dibromoethane	1300	U	1300	75	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	100	
107-06-2	1,2-Dichloroethane	1300	U	1300	75	
78-87-5	1,2-Dichloropropane	1300	U	1300	170	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	90	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	85	
71-36-3	n-Butanol	13000	U	13000	1700	
78-93-3	2-Butanone (MEK)	2500	U	2500	250	
591-78-6	2-Hexanone	2500	U	2500	100	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	85	
67-64-1	Acetone	5000	U	5000	400	
71-43-2	Benzene	1300	U	1300	78	
75-27-4	Bromodichloromethane	1300	U	1300	110	
75-25-2	Bromoform	1300	U	1300	75	
74-83-9	Bromomethane	1300	U	1300	100	
75-15-0	Carbon Disulfide	2500	U	2500	88	
56-23-5	Carbon Tetrachloride	1300	U	1300	90	
108-90-7	Chlorobenzene	1300	U	1300	75	
75-00-3	Chloroethane	1300	U	1300	75	
67-66-3	Chloroform	1300	U	1300	75	
74-87-3	Chloromethane	1300	U	1300	120	
110-82-7	Cyclohexane	2500	U	2500	75	
124-48-1	Dibromochloromethane	1300	U	1300	75	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	
75-09-2	Dichloromethane	1300	U	1300	75	
100-41-4	Ethylbenzene	1300	U	1300	110	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 02:44
Sample Name:	LC34-BW0002C-038.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0415.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	85	
79-20-9	Methyl Acetate	2500	U	2500	170	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	75	
108-87-2	Methylcyclohexane	2500	U	2500	75	
100-42-5	Styrene	1300	U	1300	88	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	110	
108-88-3	Toluene	1300	U	1300	75	
79-01-6	Trichloroethene (TCE)	**620**	J	1300	75	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	75	
75-01-4	Vinyl Chloride	**700**	J	1300	75	
156-59-2	cis-1,2-Dichloroethene	**78000**	E	1300	75	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	75	
179601-23-1	m,p-Xylenes	1300	U	1300	210	
123-86-4	n-Butyl Acetate	1300	U	1300	75	
95-47-6	o-Xylene	1300	U	1300	100	
156-60-5	trans-1,2-Dichloroethene	**510**	J	1300	75	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	75	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/4/11 02:44	
Dibromofluoromethane	109	89-119	2/4/11 02:44	
Toluene-d8	109	87-121	2/4/11 02:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 20:02
Sample Name:	LC34-BW0002C-038.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-008	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234996
Data File Name:	J:\ACQUDATA\msvoa10\data\020411\D0445.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	2500	U	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 20:02
Sample Name:	LC34-BW0002C-038.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-008	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234996
Data File Name:	J:\ACQUDATA\msvoa10\data\020411\D0445.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**710**	DJ	2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	**880**	DJ	2500	150	
156-59-2	cis-1,2-Dichloroethene	**87000**	D	2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	**640**	DJ	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/4/11 20:02	
Dibromofluoromethane	112	89-119	2/4/11 20:02	
Toluene-d8	112	87-121	2/4/11 20:02	

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1038
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 20:32
Sample Name:	LC34-BW0002D-045.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234996
Data File Name:	J:\ACQUDATA\msvoa10\data\020411\D0446.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	130	U	130	7.5	
79-34-5	1,1,2,2-Tetrachloroethane	130	U	130	7.5	
79-00-5	1,1,2-Trichloroethane	130	U	130	7.5	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	130	U	130	10	
75-34-3	1,1-Dichloroethane (1,1-DCA)	130	U	130	7.5	
75-35-4	1,1-Dichloroethene (1,1-DCE)	130	U	130	9.3	
120-82-1	1,2,4-Trichlorobenzene	130	U	130	7.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	11	
106-93-4	1,2-Dibromoethane	130	U	130	7.5	
95-50-1	1,2-Dichlorobenzene	130	U	130	10	
107-06-2	1,2-Dichloroethane	130	U	130	7.5	
78-87-5	1,2-Dichloropropane	130	U	130	17	
541-73-1	1,3-Dichlorobenzene	130	U	130	9.0	
106-46-7	1,4-Dichlorobenzene	130	U	130	8.5	
71-36-3	n-Butanol	1300	U	1300	170	
78-93-3	2-Butanone (MEK)	250	U	250	25	
591-78-6	2-Hexanone	250	U	250	10	
108-10-1	4-Methyl-2-pentanone	250	U	250	8.5	
67-64-1	Acetone	500	U	500	40	
71-43-2	Benzene	130	U	130	7.8	
75-27-4	Bromodichloromethane	130	U	130	11	
75-25-2	Bromoform	130	U	130	7.5	
74-83-9	Bromomethane	130	U	130	10	
75-15-0	Carbon Disulfide	250	U	250	8.8	
56-23-5	Carbon Tetrachloride	130	U	130	9.0	
108-90-7	Chlorobenzene	130	U	130	7.5	
75-00-3	Chloroethane	130	U	130	7.5	
67-66-3	Chloroform	130	U	130	7.5	
74-87-3	Chloromethane	130	U	130	12	
110-82-7	Cyclohexane	250	U	250	7.5	
124-48-1	Dibromochloromethane	130	U	130	7.5	
75-71-8	Dichlorodifluoromethane (CFC 12)	130	U	130	19	
75-09-2	Dichloromethane	130	U	130	7.5	
100-41-4	Ethylbenzene	130	U	130	11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1038
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 20:32
Sample Name:	LC34-BW0002D-045.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234996
Data File Name:	J:\ACQUDATA\msvoa10\data\020411\D0446.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	130	U	130	8.5	
79-20-9	Methyl Acetate	250	U	250	17	
1634-04-4	Methyl tert-Butyl Ether	130	U	130	7.5	
108-87-2	Methylcyclohexane	250	U	250	7.5	
100-42-5	Styrene	130	U	130	8.8	
127-18-4	Tetrachloroethene (PCE)	130	U	130	11	
108-88-3	Toluene	130	U	130	7.5	
79-01-6	Trichloroethene (TCE)	**39**	J	130	7.5	
75-69-4	Trichlorofluoromethane (CFC 11)	130	U	130	7.5	
75-01-4	Vinyl Chloride	**52**	J	130	7.5	
156-59-2	cis-1,2-Dichloroethene	**4200**		130	7.5	
10061-01-5	cis-1,3-Dichloropropene	130	U	130	7.5	
179601-23-1	m,p-Xylenes	130	U	130	21	
123-86-4	n-Butyl Acetate	130	U	130	7.5	
95-47-6	o-Xylene	130	U	130	10	
156-60-5	trans-1,2-Dichloroethene	**29**	J	130	7.5	
10061-02-6	trans-1,3-Dichloropropene	130	U	130	7.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/4/11 20:32	
Dibromofluoromethane	110	89-119	2/4/11 20:32	
Toluene-d8	113	87-121	2/4/11 20:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0952
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 03:44
Sample Name:	LC34-BW0002E-052.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0417.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0952
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 03:44
Sample Name:	LC34-BW0002E-052.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0417.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	**0.78**	J	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	**9.3**		5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/4/11 03:44	
Dibromofluoromethane	108	89-119	2/4/11 03:44	
Toluene-d8	110	87-121	2/4/11 03:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0857
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 04:14
Sample Name:	LC34-BW0002F-059.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0418.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	25	U	25	1.5	
79-34-5	1,1,2,2-Tetrachloroethane	25	U	25	1.5	
79-00-5	1,1,2-Trichloroethane	25	U	25	1.5	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	25	U	25	2.0	
75-34-3	1,1-Dichloroethane (1,1-DCA)	25	U	25	1.5	
75-35-4	1,1-Dichloroethene (1,1-DCE)	25	U	25	1.9	
120-82-1	1,2,4-Trichlorobenzene	25	U	25	1.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	2.2	
106-93-4	1,2-Dibromoethane	25	U	25	1.5	
95-50-1	1,2-Dichlorobenzene	25	U	25	2.0	
107-06-2	1,2-Dichloroethane	25	U	25	1.5	
78-87-5	1,2-Dichloropropane	25	U	25	3.4	
541-73-1	1,3-Dichlorobenzene	25	U	25	1.8	
106-46-7	1,4-Dichlorobenzene	25	U	25	1.8	
71-36-3	n-Butanol	250	U	250	34	
78-93-3	2-Butanone (MEK)	50	U	50	5.0	
591-78-6	2-Hexanone	50	U	50	2.0	
108-10-1	4-Methyl-2-pentanone	50	U	50	1.8	
67-64-1	Acetone	100	U	100	8.0	
71-43-2	Benzene	25	U	25	1.6	
75-27-4	Bromodichloromethane	25	U	25	2.1	
75-25-2	Bromoform	25	U	25	1.5	
74-83-9	Bromomethane	25	U	25	2.0	
75-15-0	Carbon Disulfide	50	U	50	1.8	
56-23-5	Carbon Tetrachloride	25	U	25	1.8	
108-90-7	Chlorobenzene	25	U	25	1.5	
75-00-3	Chloroethane	25	U	25	1.5	
67-66-3	Chloroform	25	U	25	1.5	
74-87-3	Chloromethane	25	U	25	2.4	
110-82-7	Cyclohexane	50	U	50	1.5	
124-48-1	Dibromochloromethane	25	U	25	1.5	
75-71-8	Dichlorodifluoromethane (CFC 12)	25	U	25	3.7	
75-09-2	Dichloromethane	25	U	25	1.5	
100-41-4	Ethylbenzene	25	U	25	2.1	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0857
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 04:14
Sample Name:	LC34-BW0002F-059.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0418.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	25	U	25	1.8	
79-20-9	Methyl Acetate	50	U	50	3.4	
1634-04-4	Methyl tert-Butyl Ether	25	U	25	1.5	
108-87-2	Methylcyclohexane	50	U	50	1.5	
100-42-5	Styrene	25	U	25	1.8	
127-18-4	Tetrachloroethene (PCE)	25	U	25	2.1	
108-88-3	Toluene	25	U	25	1.5	
79-01-6	Trichloroethene (TCE)	**10**	J	25	1.5	
75-69-4	Trichlorofluoromethane (CFC 11)	25	U	25	1.5	
75-01-4	Vinyl Chloride	**28**		25	1.5	
156-59-2	cis-1,2-Dichloroethene	**880**		25	1.5	
10061-01-5	cis-1,3-Dichloropropene	25	U	25	1.5	
179601-23-1	m,p-Xylenes	25	U	25	4.1	
123-86-4	n-Butyl Acetate	25	U	25	1.5	
95-47-6	o-Xylene	25	U	25	2.0	
156-60-5	trans-1,2-Dichloroethene	**5.0**	J	25	1.5	
10061-02-6	trans-1,3-Dichloropropene	25	U	25	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/4/11 04:14	
Dibromofluoromethane	108	89-119	2/4/11 04:14	
Toluene-d8	110	87-121	2/4/11 04:14	

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0848
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 04:44
Sample Name:	LC34-BW0001A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0419.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	30	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	30	
79-00-5	1,1,2-Trichloroethane	500	U	500	30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**140000**	E	500	40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	37	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	
106-93-4	1,2-Dibromoethane	500	U	500	30	
95-50-1	1,2-Dichlorobenzene	500	U	500	40	
107-06-2	1,2-Dichloroethane	500	U	500	30	
78-87-5	1,2-Dichloropropane	500	U	500	66	
541-73-1	1,3-Dichlorobenzene	500	U	500	36	
106-46-7	1,4-Dichlorobenzene	500	U	500	34	
71-36-3	n-Butanol	5000	U	5000	670	
78-93-3	2-Butanone (MEK)	1000	U	1000	100	
591-78-6	2-Hexanone	1000	U	1000	40	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	34	
67-64-1	Acetone	2000	U	2000	160	
71-43-2	Benzene	500	U	500	31	
75-27-4	Bromodichloromethane	500	U	500	41	
75-25-2	Bromoform	500	U	500	30	
74-83-9	Bromomethane	500	U	500	40	
75-15-0	Carbon Disulfide	1000	U	1000	35	
56-23-5	Carbon Tetrachloride	500	U	500	36	
108-90-7	Chlorobenzene	500	U	500	30	
75-00-3	Chloroethane	500	U	500	30	
67-66-3	Chloroform	500	U	500	30	
74-87-3	Chloromethane	500	U	500	46	
110-82-7	Cyclohexane	1000	U	1000	30	
124-48-1	Dibromochloromethane	500	U	500	30	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	73	
75-09-2	Dichloromethane	500	U	500	30	
100-41-4	Ethylbenzene	500	U	500	42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0848
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 04:44
Sample Name:	LC34-BW0001A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0419.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	34	
79-20-9	Methyl Acetate	1000	U	1000	66	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	30	
108-87-2	Methylcyclohexane	1000	U	1000	30	
100-42-5	Styrene	500	U	500	35	
127-18-4	Tetrachloroethene (PCE)	500	U	500	42	
108-88-3	Toluene	500	U	500	30	
79-01-6	Trichloroethene (TCE)	**300**	J	500	30	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	30	
75-01-4	Vinyl Chloride	**4700**		500	30	
156-59-2	cis-1,2-Dichloroethene	**36000**	E	500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	30	
179601-23-1	m,p-Xylenes	500	U	500	81	
123-86-4	n-Butyl Acetate	500	U	500	30	
95-47-6	o-Xylene	500	U	500	40	
156-60-5	trans-1,2-Dichloroethene	**640**		500	30	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/4/11 04:44	
Dibromofluoromethane	108	89-119	2/4/11 04:44	
Toluene-d8	112	87-121	2/4/11 04:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0848
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 15:23
Sample Name:	LC34-BW0001A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-012	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0464.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	300	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	300	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	300	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**120000**	D	5000	400	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	300	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	370	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	300	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	430	
106-93-4	1,2-Dibromoethane	5000	U	5000	300	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	400	
107-06-2	1,2-Dichloroethane	5000	U	5000	300	
78-87-5	1,2-Dichloropropane	5000	U	5000	660	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	360	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	340	
71-36-3	n-Butanol	50000	U	50000	6700	
78-93-3	2-Butanone (MEK)	10000	U	10000	1000	
591-78-6	2-Hexanone	10000	U	10000	400	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	340	
67-64-1	Acetone	20000	U	20000	1600	
71-43-2	Benzene	5000	U	5000	310	
75-27-4	Bromodichloromethane	5000	U	5000	410	
75-25-2	Bromoform	5000	U	5000	300	
74-83-9	Bromomethane	5000	U	5000	400	
75-15-0	Carbon Disulfide	10000	U	10000	350	
56-23-5	Carbon Tetrachloride	5000	U	5000	360	
108-90-7	Chlorobenzene	5000	U	5000	300	
75-00-3	Chloroethane	5000	U	5000	300	
67-66-3	Chloroform	5000	U	5000	300	
74-87-3	Chloromethane	5000	U	5000	460	
110-82-7	Cyclohexane	10000	U	10000	300	
124-48-1	Dibromochloromethane	5000	U	5000	300	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	730	
75-09-2	Dichloromethane	5000	U	5000	300	
100-41-4	Ethylbenzene	5000	U	5000	420	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0848
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 15:23
Sample Name:	LC34-BW0001A-024.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-012	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0464.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	340	
79-20-9	Methyl Acetate	10000	U	10000	660	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	300	
108-87-2	Methylcyclohexane	10000	U	10000	300	
100-42-5	Styrene	5000	U	5000	350	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	420	
108-88-3	Toluene	5000	U	5000	300	
79-01-6	Trichloroethene (TCE)	**350**	DJ	5000	300	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	300	
75-01-4	Vinyl Chloride	**4100**	DJ	5000	300	
156-59-2	cis-1,2-Dichloroethene	**31000**	D	5000	300	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	300	
179601-23-1	m,p-Xylenes	5000	U	5000	810	
123-86-4	n-Butyl Acetate	5000	U	5000	300	
95-47-6	o-Xylene	5000	U	5000	400	
156-60-5	trans-1,2-Dichloroethene	**520**	DJ	5000	300	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	300	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/8/11 15:23	
Dibromofluoromethane	107	89-119	2/8/11 15:23	
Toluene-d8	110	87-121	2/8/11 15:23	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0936
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 05:14
Sample Name:	LC34-BW0001B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0420.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	60	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	60	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	60	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**140000**	E	1000	80	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	60	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	
106-93-4	1,2-Dibromoethane	1000	U	1000	60	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	80	
107-06-2	1,2-Dichloroethane	1000	U	1000	60	
78-87-5	1,2-Dichloropropane	1000	U	1000	140	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	72	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	68	
71-36-3	n-Butanol	10000	U	10000	1400	
78-93-3	2-Butanone (MEK)	2000	U	2000	200	
591-78-6	2-Hexanone	2000	U	2000	80	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	68	
67-64-1	Acetone	4000	U	4000	320	
71-43-2	Benzene	1000	U	1000	62	
75-27-4	Bromodichloromethane	1000	U	1000	82	
75-25-2	Bromoform	1000	U	1000	60	
74-83-9	Bromomethane	1000	U	1000	80	
75-15-0	Carbon Disulfide	2000	U	2000	70	
56-23-5	Carbon Tetrachloride	1000	U	1000	72	
108-90-7	Chlorobenzene	1000	U	1000	60	
75-00-3	Chloroethane	1000	U	1000	60	
67-66-3	Chloroform	1000	U	1000	60	
74-87-3	Chloromethane	1000	U	1000	92	
110-82-7	Cyclohexane	2000	U	2000	60	
124-48-1	Dibromochloromethane	1000	U	1000	60	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	
75-09-2	Dichloromethane	1000	U	1000	60	
100-41-4	Ethylbenzene	1000	U	1000	84	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0936
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 05:14
Sample Name:	LC34-BW0001B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0420.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	68	
79-20-9	Methyl Acetate	2000	U	2000	140	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	60	
108-87-2	Methylcyclohexane	2000	U	2000	60	
100-42-5	Styrene	1000	U	1000	70	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	84	
108-88-3	Toluene	1000	U	1000	60	
79-01-6	Trichloroethene (TCE)	**27000**		1000	60	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	60	
75-01-4	Vinyl Chloride	**160**	J	1000	60	
156-59-2	cis-1,2-Dichloroethene	**6600**		1000	60	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	60	
179601-23-1	m,p-Xylenes	1000	U	1000	170	
123-86-4	n-Butyl Acetate	1000	U	1000	60	
95-47-6	o-Xylene	1000	U	1000	80	
156-60-5	trans-1,2-Dichloroethene	**150**	J	1000	60	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	60	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/4/11 05:14	
Dibromofluoromethane	109	89-119	2/4/11 05:14	
Toluene-d8	110	87-121	2/4/11 05:14	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0936
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 15:54
Sample Name:	LC34-BW0001B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-013	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0465.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	300	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	300	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	300	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**130000**	D	5000	400	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	300	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	370	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	300	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	430	
106-93-4	1,2-Dibromoethane	5000	U	5000	300	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	400	
107-06-2	1,2-Dichloroethane	5000	U	5000	300	
78-87-5	1,2-Dichloropropane	5000	U	5000	660	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	360	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	340	
71-36-3	n-Butanol	50000	U	50000	6700	
78-93-3	2-Butanone (MEK)	10000	U	10000	1000	
591-78-6	2-Hexanone	10000	U	10000	400	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	340	
67-64-1	Acetone	20000	U	20000	1600	
71-43-2	Benzene	5000	U	5000	310	
75-27-4	Bromodichloromethane	5000	U	5000	410	
75-25-2	Bromoform	5000	U	5000	300	
74-83-9	Bromomethane	5000	U	5000	400	
75-15-0	Carbon Disulfide	10000	U	10000	350	
56-23-5	Carbon Tetrachloride	5000	U	5000	360	
108-90-7	Chlorobenzene	5000	U	5000	300	
75-00-3	Chloroethane	5000	U	5000	300	
67-66-3	Chloroform	5000	U	5000	300	
74-87-3	Chloromethane	5000	U	5000	460	
110-82-7	Cyclohexane	10000	U	10000	300	
124-48-1	Dibromochloromethane	5000	U	5000	300	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	730	
75-09-2	Dichloromethane	5000	U	5000	300	
100-41-4	Ethylbenzene	5000	U	5000	420	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 0936
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 15:54
Sample Name:	LC34-BW0001B-031.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-013	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0465.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	340	
79-20-9	Methyl Acetate	10000	U	10000	660	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	300	
108-87-2	Methylcyclohexane	10000	U	10000	300	
100-42-5	Styrene	5000	U	5000	350	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	420	
108-88-3	Toluene	5000	U	5000	300	
79-01-6	Trichloroethene (TCE)	**23000**	D	5000	300	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	300	
75-01-4	Vinyl Chloride	5000	U	5000	300	
156-59-2	cis-1,2-Dichloroethene	**6000**	D	5000	300	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	300	
179601-23-1	m,p-Xylenes	5000	U	5000	810	
123-86-4	n-Butyl Acetate	5000	U	5000	300	
95-47-6	o-Xylene	5000	U	5000	400	
156-60-5	trans-1,2-Dichloroethene	5000	U	5000	300	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	300	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/8/11 15:54	
Dibromofluoromethane	109	89-119	2/8/11 15:54	
Toluene-d8	110	87-121	2/8/11 15:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1031
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 16:24
Sample Name:	LC34-BW0001C-038.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0466.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1600**	J	2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	2500	U	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1031
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 16:24
Sample Name:	LC34-BW0001C-038.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0466.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**53000**		2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	2500	U	2500	150	
156-59-2	cis-1,2-Dichloroethene	**47000**		2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	**280**	J	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/8/11 16:24	
Dibromofluoromethane	108	89-119	2/8/11 16:24	
Toluene-d8	110	87-121	2/8/11 16:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 06:13
Sample Name:	LC34-BW0001D-045.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0422.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**43000**		2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	2500	U	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 06:13
Sample Name:	LC34-BW0001D-045.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0422.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**140000**	E	2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	2500	U	2500	150	
156-59-2	cis-1,2-Dichloroethene	**5200**		2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	2500	U	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/4/11 06:13	
Dibromofluoromethane	108	89-119	2/4/11 06:13	
Toluene-d8	110	87-121	2/4/11 06:13	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 16:54
Sample Name:	LC34-BW0001D-045.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-015	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0467.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	300	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	300	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	300	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**51000**	D	5000	400	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	300	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	370	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	300	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	430	
106-93-4	1,2-Dibromoethane	5000	U	5000	300	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	400	
107-06-2	1,2-Dichloroethane	5000	U	5000	300	
78-87-5	1,2-Dichloropropane	5000	U	5000	660	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	360	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	340	
71-36-3	n-Butanol	50000	U	50000	6700	
78-93-3	2-Butanone (MEK)	10000	U	10000	1000	
591-78-6	2-Hexanone	10000	U	10000	400	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	340	
67-64-1	Acetone	20000	U	20000	1600	
71-43-2	Benzene	5000	U	5000	310	
75-27-4	Bromodichloromethane	5000	U	5000	410	
75-25-2	Bromoform	5000	U	5000	300	
74-83-9	Bromomethane	5000	U	5000	400	
75-15-0	Carbon Disulfide	10000	U	10000	350	
56-23-5	Carbon Tetrachloride	5000	U	5000	360	
108-90-7	Chlorobenzene	5000	U	5000	300	
75-00-3	Chloroethane	5000	U	5000	300	
67-66-3	Chloroform	5000	U	5000	300	
74-87-3	Chloromethane	5000	U	5000	460	
110-82-7	Cyclohexane	10000	U	10000	300	
124-48-1	Dibromochloromethane	5000	U	5000	300	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	730	
75-09-2	Dichloromethane	5000	U	5000	300	
100-41-4	Ethylbenzene	5000	U	5000	420	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 16:54
Sample Name:	LC34-BW0001D-045.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-015	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0467.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	340	
79-20-9	Methyl Acetate	10000	U	10000	660	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	300	
108-87-2	Methylcyclohexane	10000	U	10000	300	
100-42-5	Styrene	5000	U	5000	350	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	420	
108-88-3	Toluene	5000	U	5000	300	
79-01-6	Trichloroethene (TCE)	**150000**	D	5000	300	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	300	
75-01-4	Vinyl Chloride	5000	U	5000	300	
156-59-2	cis-1,2-Dichloroethene	**5200**	D	5000	300	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	300	
179601-23-1	m,p-Xylenes	5000	U	5000	810	
123-86-4	n-Butyl Acetate	5000	U	5000	300	
95-47-6	o-Xylene	5000	U	5000	400	
156-60-5	trans-1,2-Dichloroethene	5000	U	5000	300	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	300	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/8/11 16:54	
Dibromofluoromethane	108	89-119	2/8/11 16:54	
Toluene-d8	111	87-121	2/8/11 16:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1346
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 17:24
Sample Name:	LC34-BW0001E-052.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0468.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	3.0	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	3.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	3.0	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	50	U	50	4.0	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	3.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	3.7	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	3.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	4.3	
106-93-4	1,2-Dibromoethane	50	U	50	3.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	4.0	
107-06-2	1,2-Dichloroethane	50	U	50	3.0	
78-87-5	1,2-Dichloropropane	50	U	50	6.7	
541-73-1	1,3-Dichlorobenzene	50	U	50	3.6	
106-46-7	1,4-Dichlorobenzene	50	U	50	3.5	
71-36-3	n-Butanol	500	U	500	67	
78-93-3	2-Butanone (MEK)	100	U	100	10	
591-78-6	2-Hexanone	100	U	100	4.0	
108-10-1	4-Methyl-2-pentanone	100	U	100	3.5	
67-64-1	Acetone	200	U	200	16	
71-43-2	Benzene	50	U	50	3.1	
75-27-4	Bromodichloromethane	50	U	50	4.1	
75-25-2	Bromoform	50	U	50	3.0	
74-83-9	Bromomethane	50	U	50	4.0	
75-15-0	Carbon Disulfide	100	U	100	3.5	
56-23-5	Carbon Tetrachloride	50	U	50	3.6	
108-90-7	Chlorobenzene	50	U	50	3.0	
75-00-3	Chloroethane	50	U	50	3.0	
67-66-3	Chloroform	50	U	50	3.0	
74-87-3	Chloromethane	50	U	50	4.7	
110-82-7	Cyclohexane	100	U	100	3.0	
124-48-1	Dibromochloromethane	50	U	50	3.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	7.3	
75-09-2	Dichloromethane	50	U	50	3.0	
100-41-4	Ethylbenzene	50	U	50	4.2	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1346
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/8/11 17:24
Sample Name:	LC34-BW0001E-052.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0468.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	3.5	
79-20-9	Methyl Acetate	100	U	100	6.7	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	3.0	
108-87-2	Methylcyclohexane	100	U	100	3.0	
100-42-5	Styrene	50	U	50	3.5	
127-18-4	Tetrachloroethene (PCE)	50	U	50	4.2	
108-88-3	Toluene	50	U	50	3.0	
79-01-6	Trichloroethene (TCE)	**1600**		50	3.0	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	3.0	
75-01-4	Vinyl Chloride	50	U	50	3.0	
156-59-2	cis-1,2-Dichloroethene	**220**		50	3.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	3.0	
179601-23-1	m,p-Xylenes	50	U	50	8.2	
123-86-4	n-Butyl Acetate	50	U	50	3.0	
95-47-6	o-Xylene	50	U	50	4.0	
156-60-5	trans-1,2-Dichloroethene	50	U	50	3.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	3.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/8/11 17:24	
Dibromofluoromethane	110	89-119	2/8/11 17:24	
Toluene-d8	111	87-121	2/8/11 17:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1430
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 07:13
Sample Name:	LC34-BW0001F-059.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0424.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.79	J	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	2/ 1/11 1430
Sample Matrix:	Water	**Date Received:**	2/ 2/11
		Date Analyzed:	2/4/11 07:13
Sample Name:	LC34-BW0001F-059.5-20110201	**Units:**	µg/L
Lab Code:	R1100627-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0424.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	**3.5**	J	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	**0.79**	J	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/4/11 07:13	
Dibromofluoromethane	109	89-119	2/4/11 07:13	
Toluene-d8	111	87-121	2/4/11 07:13	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/3/11 12:47
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101159-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0387.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/3/11 12:47
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101159-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234827
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0387.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	2/3/11 12:47	
Dibromofluoromethane	106	89-119	2/3/11 12:47	
Toluene-d8	110	87-121	2/3/11 12:47	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/4/11 00:45
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101213-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0411.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/4/11 00:45
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101213-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234829
Data File Name:	J:\ACQUDATA\msvoa10\data\020311\D0411.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/4/11 00:45	
Dibromofluoromethane	106	89-119	2/4/11 00:45	
Toluene-d8	110	87-121	2/4/11 00:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/4/11 13:31
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101220-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234996
Data File Name:	J:\ACQUDATA\msvoa10\data\020411\D0432.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/4/11 13:31
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101220-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	234996
Data File Name:	J:\ACQUDATA\msvoa10\data\020411\D0432.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/4/11 13:31	
Dibromofluoromethane	107	89-119	2/4/11 13:31	
Toluene-d8	110	87-121	2/4/11 13:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/8/11 12:57
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101312-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0460.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100627
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/8/11 12:57
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101312-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235304
Data File Name:	J:\ACQUDATA\msvoa10\data\020811\D0460.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	2/8/11 12:57	
Dibromofluoromethane	106	89-119	2/8/11 12:57	
Toluene-d8	110	87-121	2/8/11 12:57	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 234827

Analyte Name	Lab Control Sample RQ1101159-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.2	20.0	96	72 - 128
1,1,2,2-Tetrachloroethane	21.1	20.0	105	72 - 131
1,1,2-Trichloroethane	18.4	20.0	92	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	21.6	20.0	108	71 - 134
1,1-Dichloroethane (1,1-DCA)	19.9	20.0	100	76 - 122
1,1-Dichloroethene (1,1-DCE)	18.6	20.0	93	72 - 129
1,2,4-Trichlorobenzene	19.3	20.0	97	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.6	20.0	98	62 - 131
1,2-Dibromoethane	21.0	20.0	105	78 - 125
1,2-Dichlorobenzene	19.2	20.0	96	79 - 124
1,2-Dichloroethane	20.2	20.0	101	78 - 126
1,2-Dichloropropane	19.8	20.0	99	80 - 123
1,3-Dichlorobenzene	19.5	20.0	98	78 - 124
1,4-Dichlorobenzene	19.6	20.0	98	78 - 123
n-Butanol	861	1000	86	70 - 130
2-Butanone (MEK)	19.1	20.0	95	60 - 133
2-Hexanone	19.0	20.0	95	61 - 131
4-Methyl-2-pentanone	18.7	20.0	94	61 - 132
Acetone	15.8	20.0	79	59 - 140
Benzene	19.1	20.0	96	78 - 121
Bromodichloromethane	19.4	20.0	97	80 - 125
Bromoform	18.6	20.0	93	73 - 132
Bromomethane	18.8	20.0	94	57 - 144
Carbon Disulfide	18.2	20.0	91	59 - 138
Carbon Tetrachloride	18.4	20.0	92	69 - 135
Chlorobenzene	19.2	20.0	96	80 - 121
Chloroethane	21.6	20.0	108	71 - 130
Chloroform	19.5	20.0	97	78 - 125
Chloromethane	21.9	20.0	110	62 - 133
Cyclohexane	20.7	20.0	104	67 - 127
Dibromochloromethane	19.1	20.0	95	78 - 133
Dichlorodifluoromethane (CFC 12)	25.4	20.0	127	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 234827

Lab Control Sample
RQ1101159-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.1	20.0	96	75 - 125
Ethylbenzene	19.3	20.0	97	78 - 123
Isopropylbenzene (Cumene)	20.8	20.0	104	73 - 133
Methyl Acetate	17.8	20.0	89	57 - 157
Methyl tert-Butyl Ether	18.6	20.0	93	75 - 126
Methylcyclohexane	21.4	20.0	107	64 - 133
Styrene	18.8	20.0	94	80 - 132
Tetrachloroethene (PCE)	18.8	20.0	94	72 - 131
Toluene	18.9	20.0	94	78 - 122
Trichloroethene (TCE)	18.3	20.0	92	74 - 127
Trichlorofluoromethane (CFC 11)	20.1	20.0	101	71 - 139
Vinyl Chloride	23.2	20.0	116	71 - 136
cis-1,2-Dichloroethene	19.4	20.0	97	78 - 122
cis-1,3-Dichloropropene	20.2	20.0	101	77 - 125
m,p-Xylenes	39.6	40.0	99	79 - 126
n-Butyl Acetate	18.3	20.0	91	54 - 127
o-Xylene	19.4	20.0	97	79 - 126
trans-1,2-Dichloroethene	18.7	20.0	94	75 - 121
trans-1,3-Dichloropropene	19.3	20.0	97	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 234829

Analyte Name	Lab Control Sample RQ1101213-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.8	20.0	104	72 - 128
1,1,2,2-Tetrachloroethane	21.6	20.0	108	72 - 131
1,1,2-Trichloroethane	21.1	20.0	105	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	23.4	20.0	117	71 - 134
1,1-Dichloroethane (1,1-DCA)	22.2	20.0	111	76 - 122
1,1-Dichloroethene (1,1-DCE)	20.6	20.0	103	72 - 129
1,2,4-Trichlorobenzene	21.7	20.0	109	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.1	20.0	105	62 - 131
1,2-Dibromoethane	21.3	20.0	107	78 - 125
1,2-Dichlorobenzene	21.0	20.0	105	79 - 124
1,2-Dichloroethane	22.7	20.0	113	78 - 126
1,2-Dichloropropane	22.1	20.0	111	80 - 123
1,3-Dichlorobenzene	21.3	20.0	107	78 - 124
1,4-Dichlorobenzene	21.0	20.0	105	78 - 123
n-Butanol	965	1000	97	70 - 130
2-Butanone (MEK)	20.5	20.0	102	60 - 133
2-Hexanone	20.1	20.0	101	61 - 131
4-Methyl-2-pentanone	20.1	20.0	101	61 - 132
Acetone	21.1	20.0	105	59 - 140
Benzene	21.0	20.0	105	78 - 121
Bromodichloromethane	21.5	20.0	107	80 - 125
Bromoform	20.8	20.0	104	73 - 132
Bromomethane	19.9	20.0	100	57 - 144
Carbon Disulfide	18.4	20.0	92	59 - 138
Carbon Tetrachloride	21.1	20.0	105	69 - 135
Chlorobenzene	21.3	20.0	106	80 - 121
Chloroethane	23.9	20.0	120	71 - 130
Chloroform	21.8	20.0	109	78 - 125
Chloromethane	24.4	20.0	122	62 - 133
Cyclohexane	20.5	20.0	103	67 - 127
Dibromochloromethane	21.3	20.0	106	78 - 133
Dichlorodifluoromethane (CFC 12)	27.6	20.0	138	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 234829

Lab Control Sample
RQ1101213-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.8	20.0	104	75 - 125
Ethylbenzene	21.3	20.0	106	78 - 123
Isopropylbenzene (Cumene)	23.0	20.0	115	73 - 133
Methyl Acetate	18.9	20.0	94	57 - 157
Methyl tert-Butyl Ether	21.0	20.0	105	75 - 126
Methylcyclohexane	20.7	20.0	103	64 - 133
Styrene	20.8	20.0	104	80 - 132
Tetrachloroethene (PCE)	21.2	20.0	106	72 - 131
Toluene	21.0	20.0	105	78 - 122
Trichloroethene (TCE)	21.4	20.0	107	74 - 127
Trichlorofluoromethane (CFC 11)	22.6	20.0	113	71 - 139
Vinyl Chloride	26.1	20.0	131	71 - 136
cis-1,2-Dichloroethene	21.4	20.0	107	78 - 122
cis-1,3-Dichloropropene	20.6	20.0	103	77 - 125
m,p-Xylenes	43.2	40.0	108	79 - 126
n-Butyl Acetate	19.5	20.0	98	54 - 127
o-Xylene	21.5	20.0	108	79 - 126
trans-1,2-Dichloroethene	21.3	20.0	106	75 - 121
trans-1,3-Dichloropropene	19.8	20.0	99	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 4/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 234996

Analyte Name	Lab Control Sample RQ1101220-02 Result	Spike Amount	% Rec		% Rec Limits
1,1,1-Trichloroethane (TCA)	21.0	20.0	105		72 - 128
1,1,2,2-Tetrachloroethane	21.0	20.0	105		72 - 131
1,1,2-Trichloroethane	19.0	20.0	95		80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	23.0	20.0	115		71 - 134
1,1-Dichloroethane (1,1-DCA)	22.1	20.0	110		76 - 122
1,1-Dichloroethene (1,1-DCE)	20.8	20.0	104		72 - 129
1,2,4-Trichlorobenzene	19.9	20.0	99		70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84		62 - 131
1,2-Dibromoethane	18.3	20.0	92		78 - 125
1,2-Dichlorobenzene	19.6	20.0	98		79 - 124
1,2-Dichloroethane	21.1	20.0	105		78 - 126
1,2-Dichloropropane	20.8	20.0	104		80 - 123
1,3-Dichlorobenzene	19.6	20.0	98		78 - 124
1,4-Dichlorobenzene	19.3	20.0	96		78 - 123
n-Butanol	810	1000	81		70 - 130
2-Butanone (MEK)	20.6	20.0	103		60 - 133
2-Hexanone	18.5	20.0	92		61 - 131
4-Methyl-2-pentanone	19.1	20.0	96		61 - 132
Acetone	19.0	20.0	95		59 - 140
Benzene	20.1	20.0	101		78 - 121
Bromodichloromethane	20.3	20.0	101		80 - 125
Bromoform	18.4	20.0	92		73 - 132
Bromomethane	20.5	20.0	102		57 - 144
Carbon Disulfide	18.3	20.0	92		59 - 138
Carbon Tetrachloride	20.4	20.0	102		69 - 135
Chlorobenzene	19.8	20.0	99		80 - 121
Chloroethane	24.6	20.0	123		71 - 130
Chloroform	21.6	20.0	108		78 - 125
Chloromethane	26.4	20.0	132		62 - 133
Cyclohexane	21.6	20.0	108		67 - 127
Dibromochloromethane	18.9	20.0	94		78 - 133
Dichlorodifluoromethane (CFC 12)	29.2	20.0	146	*	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 4/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 234996

Analyte Name	Lab Control Sample RQ1101220-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.9	20.0	100	75 - 125
Ethylbenzene	20.2	20.0	101	78 - 123
Isopropylbenzene (Cumene)	21.2	20.0	106	73 - 133
Methyl Acetate	19.6	20.0	98	57 - 157
Methyl tert-Butyl Ether	18.9	20.0	95	75 - 126
Methylcyclohexane	22.4	20.0	112	64 - 133
Styrene	19.2	20.0	96	80 - 132
Tetrachloroethene (PCE)	19.7	20.0	98	72 - 131
Toluene	20.4	20.0	102	78 - 122
Trichloroethene (TCE)	19.3	20.0	97	74 - 127
Trichlorofluoromethane (CFC 11)	23.8	20.0	119	71 - 139
Vinyl Chloride	26.8	20.0	134	71 - 136
cis-1,2-Dichloroethene	20.5	20.0	102	78 - 122
cis-1,3-Dichloropropene	19.5	20.0	98	77 - 125
m,p-Xylenes	40.3	40.0	101	79 - 126
n-Butyl Acetate	18.7	20.0	94	54 - 127
o-Xylene	19.7	20.0	98	79 - 126
trans-1,2-Dichloroethene	20.5	20.0	103	75 - 121
trans-1,3-Dichloropropene	18.8	20.0	94	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235304

Analyte Name	Lab Control Sample RQ1101312-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.9	20.0	99	72 - 128
1,1,2,2-Tetrachloroethane	18.9	20.0	94	72 - 131
1,1,2-Trichloroethane	18.4	20.0	92	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	21.9	20.0	109	71 - 134
1,1-Dichloroethane (1,1-DCA)	20.4	20.0	102	76 - 122
1,1-Dichloroethene (1,1-DCE)	18.9	20.0	94	72 - 129
1,2,4-Trichlorobenzene	18.4	20.0	92	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.9	20.0	84	62 - 131
1,2-Dibromoethane	17.8	20.0	89	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	20.3	20.0	101	78 - 126
1,2-Dichloropropane	20.0	20.0	100	80 - 123
1,3-Dichlorobenzene	19.0	20.0	95	78 - 124
1,4-Dichlorobenzene	19.0	20.0	95	78 - 123
n-Butanol	741	1000	74	70 - 130
2-Butanone (MEK)	18.7	20.0	93	60 - 133
2-Hexanone	16.7	20.0	84	61 - 131
4-Methyl-2-pentanone	16.4	20.0	82	61 - 132
Acetone	16.4	20.0	82	59 - 140
Benzene	19.0	20.0	95	78 - 121
Bromodichloromethane	19.5	20.0	98	80 - 125
Bromoform	18.0	20.0	90	73 - 132
Bromomethane	18.3	20.0	92	57 - 144
Carbon Disulfide	17.3	20.0	87	59 - 138
Carbon Tetrachloride	19.6	20.0	98	69 - 135
Chlorobenzene	19.3	20.0	97	80 - 121
Chloroethane	22.1	20.0	110	71 - 130
Chloroform	20.2	20.0	101	78 - 125
Chloromethane	22.2	20.0	111	62 - 133
Cyclohexane	19.7	20.0	99	67 - 127
Dibromochloromethane	18.9	20.0	94	78 - 133
Dichlorodifluoromethane (CFC 12)	26.5	20.0	132	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1100627
Date Analyzed: 2/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235304

Analyte Name	Lab Control Sample RQ1101312-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.7	20.0	93	75 - 125
Ethylbenzene	19.9	20.0	100	78 - 123
Isopropylbenzene (Cumene)	21.4	20.0	107	73 - 133
Methyl Acetate	16.7	20.0	84	57 - 157
Methyl tert-Butyl Ether	17.7	20.0	88	75 - 126
Methylcyclohexane	20.1	20.0	100	64 - 133
Styrene	18.9	20.0	95	80 - 132
Tetrachloroethene (PCE)	19.2	20.0	96	72 - 131
Toluene	19.2	20.0	96	78 - 122
Trichloroethene (TCE)	18.1	20.0	91	74 - 127
Trichlorofluoromethane (CFC 11)	22.1	20.0	110	71 - 139
Vinyl Chloride	24.0	20.0	120	71 - 136
cis-1,2-Dichloroethene	19.2	20.0	96	78 - 122
cis-1,3-Dichloropropene	18.7	20.0	93	77 - 125
m,p-Xylenes	39.5	40.0	99	79 - 126
n-Butyl Acetate	16.5	20.0	83	54 - 127
o-Xylene	19.1	20.0	95	79 - 126
trans-1,2-Dichloroethene	19.2	20.0	96	75 - 121
trans-1,3-Dichloropropene	18.1	20.0	90	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: _____

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate					REMARKS
LC34-BW0003A-024.5-20110201	02/01	1511	-001	GW	3	3					
LC34-BW0003B-031.5-20110201	02/01	1552	-002	GW	3	3					
~~LC34-BW0003C-038.5-201102~~				GW	3	3					
~~LC34-BW0003D-045.5-201102~~				GW	3	3					
LC34-BW0003E-052.5-20110201	02/01	1538	-003	GW	3	3					
LC34-BW0003F-059.5-20110201	02/01	1501	-004	GW	3	3					
TRIP BLANK	01/18	1550	-005	W	3	3					

TURNAROUND REQUIREMENTS

_____ 24 hr _____ 48 hr _____ 5 BD

__X__ Standard (15 BD)

_____ Provide FAX Preliminary Results

Requested Report Date: 18 Feb

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Invoice Information

P.O. # _____

Bill to: TR0272

_____

R1100627
GeoSyntec Consultants
ESTCP PED LC34

RELINQUISHED BY:

Signature: _____

Printed Name: Rebecca C Dapsis

Firm: GeoSyntec

Date/Time: 02/01 1645

RECEIVED BY:

Signature: _____

Printed Name: Gregory LaFore

Firm: CAS

Date/Time: 2/2/11 1227

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

PAGE 2 OF 3

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: _____

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate					REMARKS
LC34-BW0002A-024.5-20110201	02/01	1419	-006	GW	3	3					
LC34-BW0002B-031.5-20110201	↑	1342	-007	GW	3	3					
LC34-BW0002C-038.5-20110201		1307	-008	GW	3	3					
LC34-BW0002D-045.5-20110201		1038	-009	GW	3	3					
LC34-BW0002E-052.5-20110201	↓	0952	-010	GW	3	3					
LC34-BW0002F-059.5-20110201	02/01	0857	-011	GW	3	3					

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date: 18 Feb

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1100627
GeoSyntec Consultants
ESTCP PED LC34

Invoice Information

P.O. # _____

Bill to: TR0272

_____

RELINQUISHED BY:

Signature: _____

Printed Name: Rebecca Clapp

Firm: GeoSyntec

Date/Time: 02/01 1645

RECEIVED BY:

Signature: _____

Printed Name: Gregory LaFore

Firm: CAS

Date/Time: 2/2/11 1227

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

PAGE 3 OF 3

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: _____

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate					REMARKS
LC34-BW0001A-024.5-20110201	02/01	0848	-012	GW	3	3					
LC34-BW0001B-031.5-20110201		0938	-013	GW	3	3					
LC34-BW0001C-038.5-20110201		1031	-014	GW	3	3					
LC34-BW0001D-045.5-20110201		1307	-015	GW	3	3					
LC34-BW0001E-052.5-20110201	↓	1346	-016	GW	3	3					
LC34-BW0001F-059.5-20110201	02/01	1430	-017	GW	3	3					

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date: 18 Feb

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1100627

Invoice Information

P.O. # _____

Bill to: TR0272

_____

RELINQUISHED BY:

Signature: _____

Printed Name: Kathleen C Repta

Firm: Geosyntec

Date/Time: 02/01 1645

RECEIVED BY:

Signature: _____

Printed Name: Gregory LaForce

Firm: CAS

Date/Time: 2/2/11 1207

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1100627.

Cooler received on 2/2/11 by: (AE) **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)	
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO	
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A Trip Blank LC34-BW0003E-052
5.	Were **Ice** or **Ice packs** present?	(YES)	NO	
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT	

7. Temperature of cooler(s) upon receipt:	2°				
Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 2/2/11 1231

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 2/2/11

Cooler Breakdown: Date: 2/2/11 Time: 1314 by: AMM

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO

4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-			*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet			
	Zn Aceta	-	-						
	HCl	*	*						

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: O-235-002

Other Comments:

PC Secondary Review: KB 2/17/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1 Mustard Street, Suite 250 | Rochester, NY 14609 | 585-288-5380 | 585-288-8475 fax | www.caslab.com

February 18, 2011 Service Request No: R1100644

Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 2/2/11/ TR0272

Dear Cory:

Enclosed are the results of the sample(s) submitted to our laboratory on February 3, 2011. For your reference, these analyses have been assigned our service request number **R1100644**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

KBunker for:
Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1100644
Project:	ESTCP PED LC34/ TR0272 2/2/11	**Date Received:**	2/3/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Thirteen (13) water samples including one (1) Trip Blank were collected by the client on 2/2/11 and were received for analysis at Columbia Analytical Services on 2/3/11 via a national courier. The samples were received at a cooler temperature of 1.2°C, within the 0-6°C guidelines. Two locations had vials with air bubbles in 1 of the 3 vials received for the samples, no data is affected.

Volatile Organic Compounds by EPA Method 8260C

Water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except the following:
Bromomethane and Dichlorodifluoromethane %Differences (%D) were out at -26.8 %D and -28.1 %D respectively (criteria is ±20%) on the 2/7/11 CCV
When CCV %D criteria are not met, it may indicate some bias in the quantitation for that target compound in the associated samples. These compounds were not detected in all samples associated with the outlying CCV's, therefore data was acceptable.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The hits are flagged as "E", estimated. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". Both sets of data are included in the report. Only the "E", estimated values should be used from the diluted reanalysis.

The cis-1,2-Dichloroethene hit for location LC34-IW0076-075.0-20110202 (R1100644-008) is carryover from the hit in the previous location (-007).

Samples were analyzed within 7 days from collection, the holding time for unpreserved vials.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burdett **Date** 2/22/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1100644

Lab ID	Client ID
R1100644-001	LC34-BW0003C-038.5-20110202
R1100644-002	LC34-BW0003D-045.5-20110202
R1100644-003	TRIP BLANK
R1100644-004	LC34-RW0007-038.5-20110202
R1100644-005	LC34-RW0008-052.0-20110202
R1100644-006	LC34-IW0002D-037.5-20110202
R1100644-007	LC34-IW0002D1-052.5-20110202
R1100644-008	LC34-IW0076-075.0-20110202
R1100644-009	LC34-IW0067D-040.5-20110202
R1100644-010	LC34-IW0070D-040.5-20110202
R1100644-011	LC34-IW0070D1-070.0-20110202
R1100644-012	LC34-IW0071D-040.5-20110202
R1100644-013	LC34-IW0071D1-070.0-20110202

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Navy Facilities Engineering Service Center Approved
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158
West Virginia ID # 292

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1305
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 13:43
Sample Name:	LC34-BW0003C-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4566.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	30	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	30	
79-00-5	1,1,2-Trichloroethane	500	U	500	30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	37	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	
106-93-4	1,2-Dibromoethane	500	U	500	30	
95-50-1	1,2-Dichlorobenzene	500	U	500	40	
107-06-2	1,2-Dichloroethane	500	U	500	30	
78-87-5	1,2-Dichloropropane	500	U	500	66	
541-73-1	1,3-Dichlorobenzene	500	U	500	36	
106-46-7	1,4-Dichlorobenzene	500	U	500	34	
71-36-3	n-Butanol	5000	U	5000	670	
78-93-3	2-Butanone (MEK)	1000	U	1000	100	
591-78-6	2-Hexanone	1000	U	1000	40	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	34	
67-64-1	Acetone	**160**	J	2000	160	
71-43-2	Benzene	500	U	500	31	
75-27-4	Bromodichloromethane	500	U	500	41	
75-25-2	Bromoform	500	U	500	30	
74-83-9	Bromomethane	500	U	500	40	
75-15-0	Carbon Disulfide	1000	U	1000	35	
56-23-5	Carbon Tetrachloride	500	U	500	36	
108-90-7	Chlorobenzene	500	U	500	30	
75-00-3	Chloroethane	500	U	500	30	
67-66-3	Chloroform	500	U	500	30	
74-87-3	Chloromethane	500	U	500	46	
110-82-7	Cyclohexane	1000	U	1000	30	
124-48-1	Dibromochloromethane	500	U	500	30	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	73	
75-09-2	Dichloromethane	500	U	500	30	
100-41-4	Ethylbenzene	500	U	500	42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1305
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 13:43
Sample Name:	LC34-BW0003C-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4566.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	34	
79-20-9	Methyl Acetate	1000	U	1000	66	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	30	
108-87-2	Methylcyclohexane	1000	U	1000	30	
100-42-5	Styrene	500	U	500	35	
127-18-4	Tetrachloroethene (PCE)	500	U	500	42	
108-88-3	Toluene	500	U	500	30	
79-01-6	Trichloroethene (TCE)	**140**	J	500	30	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	30	
75-01-4	Vinyl Chloride	**2900**		500	30	
156-59-2	cis-1,2-Dichloroethene	**39000**	E	500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	30	
179601-23-1	m,p-Xylenes	500	U	500	81	
123-86-4	n-Butyl Acetate	500	U	500	30	
95-47-6	o-Xylene	500	U	500	40	
156-60-5	trans-1,2-Dichloroethene	**240**	J	500	30	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	2/7/11 13:43	
Dibromofluoromethane	105	89-119	2/7/11 13:43	
Toluene-d8	101	87-121	2/7/11 13:43	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1305
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 11:40
Sample Name:	LC34-BW0003C-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-001	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4590.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	75	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	75	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	75	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1300	U	1300	100	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	75	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	
106-93-4	1,2-Dibromoethane	1300	U	1300	75	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	100	
107-06-2	1,2-Dichloroethane	1300	U	1300	75	
78-87-5	1,2-Dichloropropane	1300	U	1300	170	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	90	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	85	
71-36-3	n-Butanol	13000	U	13000	1700	
78-93-3	2-Butanone (MEK)	2500	U	2500	250	
591-78-6	2-Hexanone	2500	U	2500	100	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	85	
67-64-1	Acetone	5000	U	5000	400	
71-43-2	Benzene	1300	U	1300	78	
75-27-4	Bromodichloromethane	1300	U	1300	110	
75-25-2	Bromoform	1300	U	1300	75	
74-83-9	Bromomethane	1300	U	1300	100	
75-15-0	Carbon Disulfide	2500	U	2500	88	
56-23-5	Carbon Tetrachloride	1300	U	1300	90	
108-90-7	Chlorobenzene	1300	U	1300	75	
75-00-3	Chloroethane	1300	U	1300	75	
67-66-3	Chloroform	1300	U	1300	75	
74-87-3	Chloromethane	1300	U	1300	120	
110-82-7	Cyclohexane	2500	U	2500	75	
124-48-1	Dibromochloromethane	1300	U	1300	75	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	
75-09-2	Dichloromethane	1300	U	1300	75	
100-41-4	Ethylbenzene	1300	U	1300	110	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1305
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 11:40
Sample Name:	LC34-BW0003C-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-001	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4590.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	85	
79-20-9	Methyl Acetate	2500	U	2500	170	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	75	
108-87-2	Methylcyclohexane	2500	U	2500	75	
100-42-5	Styrene	1300	U	1300	88	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	110	
108-88-3	Toluene	1300	U	1300	75	
79-01-6	Trichloroethene (TCE)	**170**	DJ	1300	75	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	75	
75-01-4	Vinyl Chloride	**2900**	D	1300	75	
156-59-2	cis-1,2-Dichloroethene	**36000**	D	1300	75	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	75	
179601-23-1	m,p-Xylenes	1300	U	1300	210	
123-86-4	n-Butyl Acetate	1300	U	1300	75	
95-47-6	o-Xylene	1300	U	1300	100	
156-60-5	trans-1,2-Dichloroethene	**240**	DJ	1300	75	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	75	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	2/8/11 11:40	
Dibromofluoromethane	106	89-119	2/8/11 11:40	
Toluene-d8	101	87-121	2/8/11 11:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1335
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 14:11
Sample Name:	LC34-BW0003D-045.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4567.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	30	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	30	
79-00-5	1,1,2-Trichloroethane	500	U	500	30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**220**	J	500	40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	37	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	
106-93-4	1,2-Dibromoethane	500	U	500	30	
95-50-1	1,2-Dichlorobenzene	500	U	500	40	
107-06-2	1,2-Dichloroethane	500	U	500	30	
78-87-5	1,2-Dichloropropane	500	U	500	66	
541-73-1	1,3-Dichlorobenzene	500	U	500	36	
106-46-7	1,4-Dichlorobenzene	500	U	500	34	
71-36-3	n-Butanol	5000	U	5000	670	
78-93-3	2-Butanone (MEK)	1000	U	1000	100	
591-78-6	2-Hexanone	1000	U	1000	40	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	34	
67-64-1	Acetone	2000	U	2000	160	
71-43-2	Benzene	500	U	500	31	
75-27-4	Bromodichloromethane	500	U	500	41	
75-25-2	Bromoform	500	U	500	30	
74-83-9	Bromomethane	500	U	500	40	
75-15-0	Carbon Disulfide	1000	U	1000	35	
56-23-5	Carbon Tetrachloride	500	U	500	36	
108-90-7	Chlorobenzene	500	U	500	30	
75-00-3	Chloroethane	500	U	500	30	
67-66-3	Chloroform	500	U	500	30	
74-87-3	Chloromethane	500	U	500	46	
110-82-7	Cyclohexane	1000	U	1000	30	
124-48-1	Dibromochloromethane	500	U	500	30	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	73	
75-09-2	Dichloromethane	500	U	500	30	
100-41-4	Ethylbenzene	500	U	500	42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1335
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 14:11
Sample Name:	LC34-BW0003D-045.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4567.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	34	
79-20-9	Methyl Acetate	1000	U	1000	66	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	30	
108-87-2	Methylcyclohexane	1000	U	1000	30	
100-42-5	Styrene	500	U	500	35	
127-18-4	Tetrachloroethene (PCE)	500	U	500	42	
108-88-3	Toluene	500	U	500	30	
79-01-6	Trichloroethene (TCE)	**7800**		500	30	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	30	
75-01-4	Vinyl Chloride	**410**	J	500	30	
156-59-2	cis-1,2-Dichloroethene	**17000**		500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	30	
179601-23-1	m,p-Xylenes	500	U	500	81	
123-86-4	n-Butyl Acetate	500	U	500	30	
95-47-6	o-Xylene	500	U	500	40	
156-60-5	trans-1,2-Dichloroethene	**79**	J	500	30	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	2/7/11 14:11	
Dibromofluoromethane	109	89-119	2/7/11 14:11	
Toluene-d8	103	87-121	2/7/11 14:11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1550
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 13:16
Sample Name:	TRIP BLANK	**Units:**	µg/L
Lab Code:	R1100644-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4565.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1550
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 13:16
Sample Name:	TRIP BLANK	**Units:**	µg/L
Lab Code:	R1100644-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4565.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/7/11 13:16	
Dibromofluoromethane	104	89-119	2/7/11 13:16	
Toluene-d8	99	87-121	2/7/11 13:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1555
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 14:38
Sample Name:	LC34-RW0007-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4568.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	60	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	60	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	60	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**13000**		1000	80	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**74**	J	1000	74	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	60	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	
106-93-4	1,2-Dibromoethane	1000	U	1000	60	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	80	
107-06-2	1,2-Dichloroethane	1000	U	1000	60	
78-87-5	1,2-Dichloropropane	1000	U	1000	140	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	72	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	68	
71-36-3	n-Butanol	10000	U	10000	1400	
78-93-3	2-Butanone (MEK)	2000	U	2000	200	
591-78-6	2-Hexanone	2000	U	2000	80	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	68	
67-64-1	Acetone	4000	U	4000	320	
71-43-2	Benzene	1000	U	1000	62	
75-27-4	Bromodichloromethane	1000	U	1000	82	
75-25-2	Bromoform	1000	U	1000	60	
74-83-9	Bromomethane	1000	U	1000	80	
75-15-0	Carbon Disulfide	2000	U	2000	70	
56-23-5	Carbon Tetrachloride	1000	U	1000	72	
108-90-7	Chlorobenzene	1000	U	1000	60	
75-00-3	Chloroethane	1000	U	1000	60	
67-66-3	Chloroform	**180**	J	1000	60	
74-87-3	Chloromethane	1000	U	1000	92	
110-82-7	Cyclohexane	2000	U	2000	60	
124-48-1	Dibromochloromethane	1000	U	1000	60	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	
75-09-2	Dichloromethane	1000	U	1000	60	
100-41-4	Ethylbenzene	1000	U	1000	84	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1555
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 14:38
Sample Name:	LC34-RW0007-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4568.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	68	
79-20-9	Methyl Acetate	2000	U	2000	140	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	60	
108-87-2	Methylcyclohexane	2000	U	2000	60	
100-42-5	Styrene	1000	U	1000	70	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	84	
108-88-3	Toluene	1000	U	1000	60	
79-01-6	Trichloroethene (TCE)	**53000**	E	1000	60	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	60	
75-01-4	Vinyl Chloride	1000	U	1000	60	
156-59-2	cis-1,2-Dichloroethene	**52000**	E	1000	60	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	60	
179601-23-1	m,p-Xylenes	1000	U	1000	170	
123-86-4	n-Butyl Acetate	1000	U	1000	60	
95-47-6	o-Xylene	1000	U	1000	80	
156-60-5	trans-1,2-Dichloroethene	**300**	J	1000	60	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	60	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	2/7/11 14:38	
Dibromofluoromethane	109	89-119	2/7/11 14:38	
Toluene-d8	102	87-121	2/7/11 14:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1555
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 12:07
Sample Name:	LC34-RW0007-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-004	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4591.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**14000**	**D**	2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	2500	U	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1555
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 12:07
Sample Name:	LC34-RW0007-038.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-004	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4591.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**54000**	D	2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	2500	U	2500	150	
156-59-2	cis-1,2-Dichloroethene	**50000**	D	2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	**300**	DJ	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/8/11 12:07	
Dibromofluoromethane	103	89-119	2/8/11 12:07	
Toluene-d8	99	87-121	2/8/11 12:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1515
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 12:35
Sample Name:	LC34-RW0008-052.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4592.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	130	U	130	7.5	
79-34-5	1,1,2,2-Tetrachloroethane	130	U	130	7.5	
79-00-5	1,1,2-Trichloroethane	130	U	130	7.5	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**620**		130	10	
75-34-3	1,1-Dichloroethane (1,1-DCA)	130	U	130	7.5	
75-35-4	1,1-Dichloroethene (1,1-DCE)	130	U	130	9.3	
120-82-1	1,2,4-Trichlorobenzene	130	U	130	7.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	11	
106-93-4	1,2-Dibromoethane	130	U	130	7.5	
95-50-1	1,2-Dichlorobenzene	130	U	130	10	
107-06-2	1,2-Dichloroethane	130	U	130	7.5	
78-87-5	1,2-Dichloropropane	130	U	130	17	
541-73-1	1,3-Dichlorobenzene	130	U	130	9.0	
106-46-7	1,4-Dichlorobenzene	130	U	130	8.5	
71-36-3	n-Butanol	1300	U	1300	170	
78-93-3	2-Butanone (MEK)	250	U	250	25	
591-78-6	2-Hexanone	250	U	250	10	
108-10-1	4-Methyl-2-pentanone	250	U	250	8.5	
67-64-1	Acetone	500	U	500	40	
71-43-2	Benzene	130	U	130	7.8	
75-27-4	Bromodichloromethane	130	U	130	11	
75-25-2	Bromoform	130	U	130	7.5	
74-83-9	Bromomethane	130	U	130	10	
75-15-0	Carbon Disulfide	250	U	250	8.8	
56-23-5	Carbon Tetrachloride	130	U	130	9.0	
108-90-7	Chlorobenzene	130	U	130	7.5	
75-00-3	Chloroethane	130	U	130	7.5	
67-66-3	Chloroform	**7.5**	J	130	7.5	
74-87-3	Chloromethane	130	U	130	12	
110-82-7	Cyclohexane	250	U	250	7.5	
124-48-1	Dibromochloromethane	130	U	130	7.5	
75-71-8	Dichlorodifluoromethane (CFC 12)	130	U	130	19	
75-09-2	Dichloromethane	130	U	130	7.5	
100-41-4	Ethylbenzene	130	U	130	11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1515
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 12:35
Sample Name:	LC34-RW0008-052.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4592.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	130	U	130	8.5	
79-20-9	Methyl Acetate	250	U	250	17	
1634-04-4	Methyl tert-Butyl Ether	130	U	130	7.5	
108-87-2	Methylcyclohexane	250	U	250	7.5	
100-42-5	Styrene	130	U	130	8.8	
127-18-4	Tetrachloroethene (PCE)	130	U	130	11	
108-88-3	Toluene	130	U	130	7.5	
79-01-6	Trichloroethene (TCE)	**4900**		130	7.5	
75-69-4	Trichlorofluoromethane (CFC 11)	130	U	130	7.5	
75-01-4	Vinyl Chloride	**18**	J	130	7.5	
156-59-2	cis-1,2-Dichloroethene	**3300**		130	7.5	
10061-01-5	cis-1,3-Dichloropropene	130	U	130	7.5	
179601-23-1	m,p-Xylenes	130	U	130	21	
123-86-4	n-Butyl Acetate	130	U	130	7.5	
95-47-6	o-Xylene	130	U	130	10	
156-60-5	trans-1,2-Dichloroethene	**20**	J	130	7.5	
10061-02-6	trans-1,3-Dichloropropene	130	U	130	7.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	2/8/11 12:35	
Dibromofluoromethane	106	89-119	2/8/11 12:35	
Toluene-d8	101	87-121	2/8/11 12:35	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1459
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 15:33
Sample Name:	LC34-IW0002D-037.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4570.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	30	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	30	
79-00-5	1,1,2-Trichloroethane	500	U	500	30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	37	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	
106-93-4	1,2-Dibromoethane	500	U	500	30	
95-50-1	1,2-Dichlorobenzene	500	U	500	40	
107-06-2	1,2-Dichloroethane	500	U	500	30	
78-87-5	1,2-Dichloropropane	500	U	500	66	
541-73-1	1,3-Dichlorobenzene	500	U	500	36	
106-46-7	1,4-Dichlorobenzene	500	U	500	34	
71-36-3	n-Butanol	5000	U	5000	670	
78-93-3	2-Butanone (MEK)	1000	U	1000	100	
591-78-6	2-Hexanone	1000	U	1000	40	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	34	
67-64-1	Acetone	2000	U	2000	160	
71-43-2	Benzene	500	U	500	31	
75-27-4	Bromodichloromethane	500	U	500	41	
75-25-2	Bromoform	500	U	500	30	
74-83-9	Bromomethane	500	U	500	40	
75-15-0	Carbon Disulfide	1000	U	1000	35	
56-23-5	Carbon Tetrachloride	500	U	500	36	
108-90-7	Chlorobenzene	500	U	500	30	
75-00-3	Chloroethane	500	U	500	30	
67-66-3	Chloroform	54	J	500	30	
74-87-3	Chloromethane	500	U	500	46	
110-82-7	Cyclohexane	1000	U	1000	30	
124-48-1	Dibromochloromethane	500	U	500	30	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	73	
75-09-2	Dichloromethane	500	U	500	30	
100-41-4	Ethylbenzene	500	U	500	42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1459
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 15:33
Sample Name:	LC34-IW0002D-037.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4570.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	34	
79-20-9	Methyl Acetate	1000	U	1000	66	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	30	
108-87-2	Methylcyclohexane	1000	U	1000	30	
100-42-5	Styrene	500	U	500	35	
127-18-4	Tetrachloroethene (PCE)	500	U	500	42	
108-88-3	Toluene	500	U	500	30	
79-01-6	Trichloroethene (TCE)	**17000**		500	30	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	30	
75-01-4	Vinyl Chloride	**170**	J	500	30	
156-59-2	cis-1,2-Dichloroethene	**64000**	E	500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	30	
179601-23-1	m,p-Xylenes	500	U	500	81	
123-86-4	n-Butyl Acetate	500	U	500	30	
95-47-6	o-Xylene	500	U	500	40	
156-60-5	trans-1,2-Dichloroethene	**390**	J	500	30	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/7/11 15:33	
Dibromofluoromethane	105	89-119	2/7/11 15:33	
Toluene-d8	101	87-121	2/7/11 15:33	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1459
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 13:02
Sample Name:	LC34-IW0002D-037.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-006	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4593.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	**460**	DJ	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1459
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/8/11 13:02
Sample Name:	LC34-IW0002D-037.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-006	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4593.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**17000**	D	2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	**170**	DJ	2500	150	
156-59-2	cis-1,2-Dichloroethene	**57000**	D	2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	**370**	DJ	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/8/11 13:02	
Dibromofluoromethane	103	89-119	2/8/11 13:02	
Toluene-d8	100	87-121	2/8/11 13:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1423
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 16:00
Sample Name:	LC34-IW0002D1-052.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4571.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	3.0	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	3.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	3.0	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**52**		50	4.0	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	3.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	3.7	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	3.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	4.3	
106-93-4	1,2-Dibromoethane	50	U	50	3.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	4.0	
107-06-2	1,2-Dichloroethane	50	U	50	3.0	
78-87-5	1,2-Dichloropropane	50	U	50	6.7	
541-73-1	1,3-Dichlorobenzene	50	U	50	3.6	
106-46-7	1,4-Dichlorobenzene	50	U	50	3.5	
71-36-3	n-Butanol	500	U	500	67	
78-93-3	2-Butanone (MEK)	100	U	100	10	
591-78-6	2-Hexanone	100	U	100	4.0	
108-10-1	4-Methyl-2-pentanone	100	U	100	3.5	
67-64-1	Acetone	200	U	200	16	
71-43-2	Benzene	50	U	50	3.1	
75-27-4	Bromodichloromethane	50	U	50	4.1	
75-25-2	Bromoform	50	U	50	3.0	
74-83-9	Bromomethane	50	U	50	4.0	
75-15-0	Carbon Disulfide	100	U	100	3.5	
56-23-5	Carbon Tetrachloride	50	U	50	3.6	
108-90-7	Chlorobenzene	50	U	50	3.0	
75-00-3	Chloroethane	50	U	50	3.0	
67-66-3	Chloroform	50	U	50	3.0	
74-87-3	Chloromethane	50	U	50	4.7	
110-82-7	Cyclohexane	100	U	100	3.0	
124-48-1	Dibromochloromethane	50	U	50	3.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	7.3	
75-09-2	Dichloromethane	50	U	50	3.0	
100-41-4	Ethylbenzene	50	U	50	4.2	
98-82-8	Isopropylbenzene (Cumene)	50	U	50	3.5	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1423
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 16:00
Sample Name:	LC34-IW0002D1-052.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4571.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	100	U	100	6.7	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	3.0	
108-87-2	Methylcyclohexane	100	U	100	3.0	
100-42-5	Styrene	50	U	50	3.5	
127-18-4	Tetrachloroethene (PCE)	50	U	50	4.2	
108-88-3	Toluene	50	U	50	3.0	
79-01-6	Trichloroethene (TCE)	**760**		50	3.0	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	3.0	
75-01-4	Vinyl Chloride	**6.4**	J	50	3.0	
156-59-2	cis-1,2-Dichloroethene	**1200**		50	3.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	3.0	
179601-23-1	m,p-Xylenes	50	U	50	8.2	
123-86-4	n-Butyl Acetate	50	U	50	3.0	
95-47-6	o-Xylene	50	U	50	4.0	
156-60-5	trans-1,2-Dichloroethene	**6.3**	J	50	3.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	3.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/7/11 16:00	
Dibromofluoromethane	105	89-119	2/7/11 16:00	
Toluene-d8	101	87-121	2/7/11 16:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1554
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 16:27
Sample Name:	LC34-IW0076-075.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4572.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1554
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 16:27
Sample Name:	LC34-IW0076-075.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4572.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	**0.40**	J	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	2/7/11 16:27	
Dibromofluoromethane	109	89-119	2/7/11 16:27	
Toluene-d8	105	87-121	2/7/11 16:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1058
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 16:55
Sample Name:	LC34-IW0067D-040.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4573.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1058
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 16:55
Sample Name:	LC34-IW0067D-040.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4573.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/7/11 16:55	
Dibromofluoromethane	104	89-119	2/7/11 16:55	
Toluene-d8	98	87-121	2/7/11 16:55	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 17:22
Sample Name:	LC34-IW0070D-040.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4574.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1307
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 17:22
Sample Name:	LC34-IW0070D-040.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4574.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/7/11 17:22	
Dibromofluoromethane	103	89-119	2/7/11 17:22	
Toluene-d8	98	87-121	2/7/11 17:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1333
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 17:49
Sample Name:	LC34-IW0070D1-070.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4575.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1333
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 17:49
Sample Name:	LC34-IW0070D1-070.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4575.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	2/7/11 17:49	
Dibromofluoromethane	104	89-119	2/7/11 17:49	
Toluene-d8	99	87-121	2/7/11 17:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 18:17
Sample Name:	LC34-IW0071D-040.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4576.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 18:17
Sample Name:	LC34-IW0071D-040.5-20110202	**Units:**	µg/L
Lab Code:	R1100644-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4576.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/7/11 18:17	
Dibromofluoromethane	103	89-119	2/7/11 18:17	
Toluene-d8	97	87-121	2/7/11 18:17	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1125
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 18:44
Sample Name:	LC34-IW0071D1-070.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4577.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	2/ 2/11 1125
Sample Matrix:	Water	**Date Received:**	2/ 3/11
		Date Analyzed:	2/7/11 18:44
Sample Name:	LC34-IW0071D1-070.0-20110202	**Units:**	µg/L
Lab Code:	R1100644-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4577.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	2/7/11 18:44	
Dibromofluoromethane	106	89-119	2/7/11 18:44	
Toluene-d8	101	87-121	2/7/11 18:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/7/11 11:27
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101185-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4561.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/7/11 11:27
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101185-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235135
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020711\L4561.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/7/11 11:27	
Dibromofluoromethane	104	89-119	2/7/11 11:27	
Toluene-d8	102	87-121	2/7/11 11:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/8/11 11:13
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101211-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4589.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100644
Project:	ESTCP PED LC34 2/2/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/8/11 11:13
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101211-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235245
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\020811\L4589.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	2/8/11 11:13	
Dibromofluoromethane	106	89-119	2/8/11 11:13	
Toluene-d8	102	87-121	2/8/11 11:13	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/2/11/ TR0272
Sample Matrix: Water

Service Request: R1100644
Date Analyzed: 2/ 7/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235135

Analyte Name	Lab Control Sample RQ1101185-04 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.2	20.0	96	72 - 128
1,1,2,2-Tetrachloroethane	18.9	20.0	94	72 - 131
1,1,2-Trichloroethane	20.5	20.0	103	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.6	20.0	103	71 - 134
1,1-Dichloroethane (1,1-DCA)	21.2	20.0	106	76 - 122
1,1-Dichloroethene (1,1-DCE)	20.1	20.0	100	72 - 129
1,2,4-Trichlorobenzene	19.1	20.0	95	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.0	20.0	105	62 - 131
1,2-Dibromoethane	20.2	20.0	101	78 - 125
1,2-Dichlorobenzene	19.2	20.0	96	79 - 124
1,2-Dichloroethane	21.0	20.0	105	78 - 126
1,2-Dichloropropane	20.5	20.0	103	80 - 123
1,3-Dichlorobenzene	19.2	20.0	96	78 - 124
1,4-Dichlorobenzene	19.1	20.0	95	78 - 123
n-Butanol	1120	1000	112	70 - 130
2-Butanone (MEK)	19.5	20.0	98	60 - 133
2-Hexanone	19.8	20.0	99	61 - 131
4-Methyl-2-pentanone	20.2	20.0	101	61 - 132
Acetone	22.4	20.0	112	59 - 140
Benzene	20.5	20.0	102	78 - 121
Bromodichloromethane	20.7	20.0	103	80 - 125
Bromoform	19.8	20.0	99	73 - 132
Bromomethane	17.4	20.0	87	57 - 144
Carbon Disulfide	20.8	20.0	104	59 - 138
Carbon Tetrachloride	19.5	20.0	97	69 - 135
Chlorobenzene	19.7	20.0	98	80 - 121
Chloroethane	22.6	20.0	113	71 - 130
Chloroform	19.9	20.0	99	78 - 125
Chloromethane	22.2	20.0	111	62 - 133
Cyclohexane	19.0	20.0	95	67 - 127
Dibromochloromethane	20.3	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	20.7	20.0	104	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/2/11/ TR0272
Sample Matrix: Water

Service Request: R1100644
Date Analyzed: 2/ 7/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235135

Analyte Name	Lab Control Sample RQ1101185-04 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.2	20.0	101	75 - 125
Ethylbenzene	20.4	20.0	102	78 - 123
Isopropylbenzene (Cumene)	22.0	20.0	110	73 - 133
Methyl Acetate	17.9	20.0	90	57 - 157
Methyl tert-Butyl Ether	19.9	20.0	99	75 - 126
Methylcyclohexane	18.1	20.0	91	64 - 133
Styrene	19.2	20.0	96	80 - 132
Tetrachloroethene (PCE)	20.6	20.0	103	72 - 131
Toluene	20.4	20.0	102	78 - 122
Trichloroethene (TCE)	19.9	20.0	100	74 - 127
Trichlorofluoromethane (CFC 11)	18.9	20.0	95	71 - 139
Vinyl Chloride	24.3	20.0	122	71 - 136
cis-1,2-Dichloroethene	21.1	20.0	106	78 - 122
cis-1,3-Dichloropropene	20.3	20.0	101	77 - 125
m,p-Xylenes	40.1	40.0	100	79 - 126
n-Butyl Acetate	18.5	20.0	92	54 - 127
o-Xylene	19.8	20.0	99	79 - 126
trans-1,2-Dichloroethene	20.4	20.0	102	75 - 121
trans-1,3-Dichloropropene	19.9	20.0	100	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/2/11/ TR0272
Sample Matrix: Water

Service Request: R1100644
Date Analyzed: 2/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235245

Lab Control Sample
RQ1101211-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.6	20.0	103	72 - 128
1,1,2,2-Tetrachloroethane	18.2	20.0	91	72 - 131
1,1,2-Trichloroethane	20.4	20.0	102	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	21.5	20.0	108	71 - 134
1,1-Dichloroethane (1,1-DCA)	22.1	20.0	110	76 - 122
1,1-Dichloroethene (1,1-DCE)	21.5	20.0	107	72 - 129
1,2,4-Trichlorobenzene	19.5	20.0	97	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.5	20.0	97	62 - 131
1,2-Dibromoethane	20.0	20.0	100	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	22.3	20.0	112	78 - 126
1,2-Dichloropropane	21.8	20.0	109	80 - 123
1,3-Dichlorobenzene	19.1	20.0	96	78 - 124
1,4-Dichlorobenzene	19.1	20.0	96	78 - 123
n-Butanol	1260	1000	126	70 - 130
2-Butanone (MEK)	18.9	20.0	94	60 - 133
2-Hexanone	20.4	20.0	102	61 - 131
4-Methyl-2-pentanone	20.6	20.0	103	61 - 132
Acetone	18.4	20.0	92	59 - 140
Benzene	21.5	20.0	108	78 - 121
Bromodichloromethane	21.8	20.0	109	80 - 125
Bromoform	19.2	20.0	96	73 - 132
Bromomethane	19.9	20.0	100	57 - 144
Carbon Disulfide	19.5	20.0	98	59 - 138
Carbon Tetrachloride	20.9	20.0	104	69 - 135
Chlorobenzene	19.6	20.0	98	80 - 121
Chloroethane	23.2	20.0	116	71 - 130
Chloroform	21.0	20.0	105	78 - 125
Chloromethane	23.9	20.0	120	62 - 133
Cyclohexane	20.1	20.0	101	67 - 127
Dibromochloromethane	20.7	20.0	103	78 - 133
Dichlorodifluoromethane (CFC 12)	22.1	20.0	110	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/2/11/ TR0272
Sample Matrix: Water

Service Request: R1100644
Date Analyzed: 2/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235245

Analyte Name	Lab Control Sample RQ1101211-04 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.5	20.0	107	75 - 125
Ethylbenzene	20.7	20.0	103	78 - 123
Isopropylbenzene (Cumene)	21.8	20.0	109	73 - 133
Methyl Acetate	19.0	20.0	95	57 - 157
Methyl tert-Butyl Ether	20.6	20.0	103	75 - 126
Methylcyclohexane	19.2	20.0	96	64 - 133
Styrene	18.9	20.0	95	80 - 132
Tetrachloroethene (PCE)	20.4	20.0	102	72 - 131
Toluene	20.1	20.0	100	78 - 122
Trichloroethene (TCE)	21.3	20.0	106	74 - 127
Trichlorofluoromethane (CFC 11)	20.4	20.0	102	71 - 139
Vinyl Chloride	26.3	20.0	132	71 - 136
cis-1,2-Dichloroethene	21.8	20.0	109	78 - 122
cis-1,3-Dichloropropene	20.8	20.0	104	77 - 125
m,p-Xylenes	39.9	40.0	100	79 - 126
n-Butyl Acetate	17.9	20.0	89	54 - 127
o-Xylene	20.1	20.0	100	79 - 126
trans-1,2-Dichloroethene	20.9	20.0	105	75 - 121
trans-1,3-Dichloropropene	20.5	20.0	103	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

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Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville FL 32780 FAX: 321-269-5880

Sampler's Signature: Janet Barfuss

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate					REMARKS
~~LC34-BW0003A-024.5-201102~~			~~001 HB~~	GW	3	3					
~~LC34-BW0003B-031.5-201102~~				GW	3	3					
LC34-BW0003C-038.5-20110202	2/2/11	1305	-001	GW	3	3					
LC34-BW0003D-045.5-20110202	2/2/11	1335	-002	GW	3	3					
~~LC34-BW0003E-052.5-201102~~				GW	3	3					
~~LC34-BW0003F-059.5-201102~~				GW	3	3					
TRIP BLANK	1/18/11	1558	-003	W	3	3					

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date: 18 Feb

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1100644

R1100644
GeoSyntec Consultants
ESTCP PED LC34 2/2/11

Invoice Information

P.O. # _____

Bill to: TR0272

_____

RELINQUISHED BY:

Signature: Joseph Bartlett

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 2/2/11 1640

RECEIVED BY:

Signature: Chrastnemh Kutzer

Printed Name: Chrastnemh Kutzer

Firm: CAS

Date/Time: 2/3/11 0933

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: / Janet Barlett

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate					REMARKS
LC34-RW0007-038.5-20110202	2/2/11	1555	-004	GW	3	3					
LC34-RW0008-052.0-20110202	2/2/11	1515	-005	GW	3	3					
~~LC34-IW0002I-027.5-20110~~				GW	3	3					
LC34-IW0002D-037.5-20110202	2/2/11	~~1445~~	1459 -006	GW	3	3					
~~LC34-IW0002S-007.0-20110~~				GW	3	3					
LC34-IW0002D1-052.5-20110202	2/2/11	~~1406~~	1423 -007	GW	3	3					
LC34-IW0076-075.0-20110202	2/2/11	~~1535~~	1554 -008	GW	3	3					

TURNAROUND REQUIREMENTS

_____ 24 hr _____ 48 hr _____ 5 BD

__X__ Standard (15 BD)

_____ Provide FAX Preliminary Results

Requested Report Date: 18 Feb

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1100644

R1100644
GeoSyntec Consultants
ESTCP PED LC34 2/2/11

Invoice Information

P.O. # _____

Bill to: TR0272

_____

RELINQUISHED BY:

Signature:

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 2/4/11 1640

RECEIVED BY:

Signature:

Printed Name: Christine M Kutzer

Firm: CAS

Date/Time: 2/3/11 0933

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

PAGE 3 OF 3

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: Joseph Barnett / Janet Barnes

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate					REMARKS
LC34-IW0067D-040.5-20110202	2/2/11	1058	-009	GW	3	3					
~~LC34-IW0067D1-068.0-201102~~				GW	3	3					
LC34-IW0070D-040.5-20110202	2/2/11	1307	-010	GW	3	3					
LC34-IW0070D1-070.0-20110202	"	~~1318~~ 1313	-011	GW	3	3					
LC34-IW0071D-040.5-20110202	↓	1100	-012	GW	3	3					
LC34-IW0071D1-070.0-20110202	2/2/11	1125	-013	GW	3	3					

TURNAROUND REQUIREMENTS

_____ 24 hr _____ 48 hr _____ 5 BD

__X__ Standard (15 BD)

_____ Provide FAX Preliminary Results

Requested Report Date: 18 Feb

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1100644

Invoice Information

P.O. # _____

Bill to: TR0272

_____

RELINQUISHED BY:

Signature: _____

Printed Name: Joseph Barnett

Firm: Geosyntec

Date/Time: 2/2/11 1640

RECEIVED BY:

Signature: _____

Printed Name: Christine M Kutter

Firm: CAS

Date/Time: 2/3/11 0933

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1100644

Cooler received on 2/3/11 by: CMK **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A	see below	
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	1.2°				
	Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 2/3/11 0935

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: VB 2/3/11

Cooler Breakdown: Date: 2/3/11 Time: 1103 by: CMK

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO	
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated			(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 0-235-002

Other Comments:

1W0071D 2/2/11 1100 (1) vial w/air bubble } 2 vials ok for each
RW0007 2/2/11 1555 (1) vial w/air bubble }

PC Secondary Review: Patton

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1 Mustard Street, Suite 250 | Rochester, NY 14609 | 585-288-5380 | 585-288-8475 fax | www.caslab.com

February 23, 2011 Service Request No: R1100666

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 2/3/11/ TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on February 4, 2011. For your reference, these analyses have been assigned our service request number **R1100666**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1100666
Project:	ESTCP PED LC34/ TR0272 2/3/11	**Date Received:**	2/4/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Six (6) water samples were collected by the client on 2/3/11 and were received for analysis at Columbia Analytical Services on 2/4/11 via a national courier. The samples were received at a cooler temperature of 1°C, within the 0-6°C guidelines.

Volatile Organic Compounds by EPA Method 8260C

Water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except the following: The minimum response factor for Carbon Tetrachloride was not met in the ICV from 1/7/11. The data has been considered acceptable since the MRL has been verified by the low standard in the calibration.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several compounds had hits above the calibration range of the standards. The hits are flagged as "E", estimated. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". Both sets of data are included in the report. Only the "E", estimated values should be used from the diluted reanalysis.

The 1,1,2-Trichloro-1,2,2-trifluoroethane and cis-1,2-Dichloroethene hits for location LC34-IW0067D1-068.0-20110203 (R1100666-006) are carryover from the hits in the previous location (-005).

Samples were analyzed within 7 days from collection, the holding time for unpreserved vials.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burdett **Date** 2/28/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1100666

Lab ID	Client ID
R1100666-001	LC34-IJ0019-037.0-20110203
R1100666-002	LC34-IJ0020-052.0-20110203
R1100666-003	LC34-IJ0015-037.0-20110203
R1100666-004	LC34-IJ0016-052.0-20110203
R1100666-005	LC34-IW0002I-027.5-20110203
R1100666-006	LC34-IW0067D1-068.0-20110203

00003 Rev

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Navy Facilities Engineering Service Center Approved
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158
West Virginia ID # 292

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1149
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/9/11 20:58
Sample Name:	LC34-IJ0019-037.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235572
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020911\U5530.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	15	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	15	
79-00-5	1,1,2-Trichloroethane	250	U	250	15	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**140**	J	250	20	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	15	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	19	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	15	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	22	
106-93-4	1,2-Dibromoethane	250	U	250	15	
95-50-1	1,2-Dichlorobenzene	250	U	250	20	
107-06-2	1,2-Dichloroethane	250	U	250	15	
78-87-5	1,2-Dichloropropane	250	U	250	33	
541-73-1	1,3-Dichlorobenzene	250	U	250	18	
106-46-7	1,4-Dichlorobenzene	250	U	250	17	
71-36-3	n-Butanol	2500	U	2500	340	
78-93-3	2-Butanone (MEK)	500	U	500	50	
591-78-6	2-Hexanone	500	U	500	20	
108-10-1	4-Methyl-2-pentanone	500	U	500	17	
67-64-1	Acetone	1000	U	1000	80	
71-43-2	Benzene	250	U	250	16	
75-27-4	Bromodichloromethane	250	U	250	21	
75-25-2	Bromoform	250	U	250	15	
74-83-9	Bromomethane	250	U	250	20	
75-15-0	Carbon Disulfide	500	U	500	18	
56-23-5	Carbon Tetrachloride	250	U	250	18	
108-90-7	Chlorobenzene	250	U	250	15	
75-00-3	Chloroethane	250	U	250	15	
67-66-3	Chloroform	250	U	250	15	
74-87-3	Chloromethane	250	U	250	23	
110-82-7	Cyclohexane	500	U	500	15	
124-48-1	Dibromochloromethane	250	U	250	15	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	37	
75-09-2	Dichloromethane	250	U	250	15	
100-41-4	Ethylbenzene	250	U	250	21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1149
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/9/11 20:58
Sample Name:	LC34-IJ0019-037.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235572
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020911\U5530.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	250	U	250	17	
79-20-9	Methyl Acetate	500	U	500	33	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	15	
108-87-2	Methylcyclohexane	500	U	500	15	
100-42-5	Styrene	250	U	250	18	
127-18-4	Tetrachloroethene (PCE)	250	U	250	21	
108-88-3	Toluene	250	U	250	15	
79-01-6	Trichloroethene (TCE)	250	U	250	15	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	15	
75-01-4	Vinyl Chloride	**5500**		250	15	
156-59-2	cis-1,2-Dichloroethene	**6400**		250	15	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	15	
179601-23-1	m,p-Xylenes	250	U	250	41	
123-86-4	n-Butyl Acetate	250	U	250	15	
95-47-6	o-Xylene	250	U	250	20	
156-60-5	trans-1,2-Dichloroethene	**180**	J	250	15	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	15	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/9/11 20:58	
Dibromofluoromethane	108	89-119	2/9/11 20:58	
Toluene-d8	109	87-121	2/9/11 20:58	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1357
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 13:50
Sample Name:	LC34-IJ0020-052.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5500.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	3.0	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	3.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	3.0	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**23**	J	50	4.0	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	3.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	3.7	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	3.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	4.3	
106-93-4	1,2-Dibromoethane	50	U	50	3.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	4.0	
107-06-2	1,2-Dichloroethane	50	U	50	3.0	
78-87-5	1,2-Dichloropropane	50	U	50	6.7	
541-73-1	1,3-Dichlorobenzene	50	U	50	3.6	
106-46-7	1,4-Dichlorobenzene	50	U	50	3.5	
71-36-3	n-Butanol	500	U	500	67	
78-93-3	2-Butanone (MEK)	100	U	100	10	
591-78-6	2-Hexanone	100	U	100	4.0	
108-10-1	4-Methyl-2-pentanone	100	U	100	3.5	
67-64-1	Acetone	200	U	200	16	
71-43-2	Benzene	50	U	50	3.1	
75-27-4	Bromodichloromethane	50	U	50	4.1	
75-25-2	Bromoform	50	U	50	3.0	
74-83-9	Bromomethane	50	U	50	4.0	
75-15-0	Carbon Disulfide	100	U	100	3.5	
56-23-5	Carbon Tetrachloride	50	U	50	3.6	
108-90-7	Chlorobenzene	50	U	50	3.0	
75-00-3	Chloroethane	50	U	50	3.0	
67-66-3	Chloroform	50	U	50	3.0	
74-87-3	Chloromethane	50	U	50	4.7	
110-82-7	Cyclohexane	100	U	100	3.0	
124-48-1	Dibromochloromethane	50	U	50	3.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	7.3	
75-09-2	Dichloromethane	50	U	50	3.0	
100-41-4	Ethylbenzene	50	U	50	4.2	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1357
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 13:50
Sample Name:	LC34-IJ0020-052.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5500.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	3.5	
79-20-9	Methyl Acetate	100	U	100	6.7	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	3.0	
108-87-2	Methylcyclohexane	100	U	100	3.0	
100-42-5	Styrene	50	U	50	3.5	
127-18-4	Tetrachloroethene (PCE)	50	U	50	4.2	
108-88-3	Toluene	50	U	50	3.0	
79-01-6	Trichloroethene (TCE)	50	U	50	3.0	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	3.0	
75-01-4	Vinyl Chloride	**410**		50	3.0	
156-59-2	cis-1,2-Dichloroethene	**1400**		50	3.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	3.0	
179601-23-1	m,p-Xylenes	50	U	50	8.2	
123-86-4	n-Butyl Acetate	50	U	50	3.0	
95-47-6	o-Xylene	50	U	50	4.0	
156-60-5	trans-1,2-Dichloroethene	**30**	J	50	3.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	3.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/8/11 13:50	
Dibromofluoromethane	106	89-119	2/8/11 13:50	
Toluene-d8	108	87-121	2/8/11 13:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 0954
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 14:22
Sample Name:	LC34-IJ0015-037.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5501.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	2500	U	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 0954
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 14:22
Sample Name:	LC34-IJ0015-037.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5501.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**3400**		2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	**3300**		2500	150	
156-59-2	cis-1,2-Dichloroethene	**70000**		2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	**320**	J	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/8/11 14:22	
Dibromofluoromethane	110	89-119	2/8/11 14:22	
Toluene-d8	109	87-121	2/8/11 14:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1042
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 14:53
Sample Name:	LC34-IJ0016-052.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5502.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	60	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	60	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	60	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000	U	1000	80	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	60	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	
106-93-4	1,2-Dibromoethane	1000	U	1000	60	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	80	
107-06-2	1,2-Dichloroethane	1000	U	1000	60	
78-87-5	1,2-Dichloropropane	1000	U	1000	140	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	72	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	68	
71-36-3	n-Butanol	10000	U	10000	1400	
78-93-3	2-Butanone (MEK)	2000	U	2000	200	
591-78-6	2-Hexanone	2000	U	2000	80	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	68	
67-64-1	Acetone	4000	U	4000	320	
71-43-2	Benzene	1000	U	1000	62	
75-27-4	Bromodichloromethane	1000	U	1000	82	
75-25-2	Bromoform	1000	U	1000	60	
74-83-9	Bromomethane	1000	U	1000	80	
75-15-0	Carbon Disulfide	2000	U	2000	70	
56-23-5	Carbon Tetrachloride	1000	U	1000	72	
108-90-7	Chlorobenzene	1000	U	1000	60	
75-00-3	Chloroethane	1000	U	1000	60	
67-66-3	Chloroform	1000	U	1000	60	
74-87-3	Chloromethane	1000	U	1000	92	
110-82-7	Cyclohexane	2000	U	2000	60	
124-48-1	Dibromochloromethane	1000	U	1000	60	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	
75-09-2	Dichloromethane	1000	U	1000	60	
100-41-4	Ethylbenzene	1000	U	1000	84	

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1042
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 14:53
Sample Name:	LC34-IJ0016-052.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5502.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	68	
79-20-9	Methyl Acetate	2000	U	2000	140	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	60	
108-87-2	Methylcyclohexane	2000	U	2000	60	
100-42-5	Styrene	1000	U	1000	70	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	84	
108-88-3	Toluene	1000	U	1000	60	
79-01-6	Trichloroethene (TCE)	**600**	J	1000	60	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	60	
75-01-4	Vinyl Chloride	**400**	J	1000	60	
156-59-2	cis-1,2-Dichloroethene	**37000**		1000	60	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	60	
179601-23-1	m,p-Xylenes	1000	U	1000	170	
123-86-4	n-Butyl Acetate	1000	U	1000	60	
95-47-6	o-Xylene	1000	U	1000	80	
156-60-5	trans-1,2-Dichloroethene	**180**	J	1000	60	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	60	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/8/11 14:53	
Dibromofluoromethane	109	89-119	2/8/11 14:53	
Toluene-d8	108	87-121	2/8/11 14:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 0846
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 15:25
Sample Name:	LC34-IW0002I-027.5-20110203	**Units:**	µg/L
Lab Code:	R1100666-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5503.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	30	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	30	
79-00-5	1,1,2-Trichloroethane	500	U	500	30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**53000**	E	500	40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	37	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	
106-93-4	1,2-Dibromoethane	500	U	500	30	
95-50-1	1,2-Dichlorobenzene	500	U	500	40	
107-06-2	1,2-Dichloroethane	500	U	500	30	
78-87-5	1,2-Dichloropropane	500	U	500	66	
541-73-1	1,3-Dichlorobenzene	500	U	500	36	
106-46-7	1,4-Dichlorobenzene	500	U	500	34	
71-36-3	n-Butanol	5000	U	5000	670	
78-93-3	2-Butanone (MEK)	1000	U	1000	100	
591-78-6	2-Hexanone	1000	U	1000	40	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	34	
67-64-1	Acetone	2000	U	2000	160	
71-43-2	Benzene	500	U	500	31	
75-27-4	Bromodichloromethane	500	U	500	41	
75-25-2	Bromoform	500	U	500	30	
74-83-9	Bromomethane	500	U	500	40	
75-15-0	Carbon Disulfide	1000	U	1000	35	
56-23-5	Carbon Tetrachloride	500	U	500	36	
108-90-7	Chlorobenzene	500	U	500	30	
75-00-3	Chloroethane	500	U	500	30	
67-66-3	Chloroform	500	U	500	30	
74-87-3	Chloromethane	500	U	500	46	
110-82-7	Cyclohexane	1000	U	1000	30	
124-48-1	Dibromochloromethane	500	U	500	30	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	73	
75-09-2	Dichloromethane	500	U	500	30	
100-41-4	Ethylbenzene	500	U	500	42	
98-82-8	Isopropylbenzene (Cumene)	500	U	500	34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 0846
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 15:25
Sample Name:	LC34-IW0002I-027.5-20110203	**Units:**	µg/L
Lab Code:	R1100666-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5503.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	1000	U	1000	66	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	30	
108-87-2	Methylcyclohexane	1000	U	1000	30	
100-42-5	Styrene	500	U	500	35	
127-18-4	Tetrachloroethene (PCE)	500	U	500	42	
108-88-3	Toluene	500	U	500	30	
79-01-6	Trichloroethene (TCE)	**370**	J	500	30	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	30	
75-01-4	Vinyl Chloride	**630**		500	30	
156-59-2	cis-1,2-Dichloroethene	**30000**	E	500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	30	
179601-23-1	m,p-Xylenes	500	U	500	81	
123-86-4	n-Butyl Acetate	500	U	500	30	
95-47-6	o-Xylene	500	U	500	40	
156-60-5	trans-1,2-Dichloroethene	**510**		500	30	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	2/8/11 15:25	
Dibromofluoromethane	106	89-119	2/8/11 15:25	
Toluene-d8	108	87-121	2/8/11 15:25	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 0846
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/9/11 21:29
Sample Name:	LC34-IW0002I-027.5-20110203	**Units:**	µg/L
Lab Code:	R1100666-005	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235572
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020911\U5531.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	150	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	150	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	150	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**47000**	D	2500	200	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	150	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	
106-93-4	1,2-Dibromoethane	2500	U	2500	150	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	200	
107-06-2	1,2-Dichloroethane	2500	U	2500	150	
78-87-5	1,2-Dichloropropane	2500	U	2500	330	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	180	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	170	
71-36-3	n-Butanol	25000	U	25000	3400	
78-93-3	2-Butanone (MEK)	5000	U	5000	500	
591-78-6	2-Hexanone	5000	U	5000	200	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	170	
67-64-1	Acetone	10000	U	10000	800	
71-43-2	Benzene	2500	U	2500	160	
75-27-4	Bromodichloromethane	2500	U	2500	210	
75-25-2	Bromoform	2500	U	2500	150	
74-83-9	Bromomethane	2500	U	2500	200	
75-15-0	Carbon Disulfide	5000	U	5000	180	
56-23-5	Carbon Tetrachloride	2500	U	2500	180	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	150	
67-66-3	Chloroform	2500	U	2500	150	
74-87-3	Chloromethane	2500	U	2500	230	
110-82-7	Cyclohexane	5000	U	5000	150	
124-48-1	Dibromochloromethane	2500	U	2500	150	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	
75-09-2	Dichloromethane	2500	U	2500	150	
100-41-4	Ethylbenzene	2500	U	2500	210	
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	170	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 0846
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/9/11 21:29
Sample Name:	LC34-IW0002I-027.5-20110203	**Units:**	µg/L
Lab Code:	R1100666-005	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235572
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020911\U5531.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	5000	U	5000	330	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	150	
100-42-5	Styrene	2500	U	2500	180	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	210	
108-88-3	Toluene	2500	U	2500	150	
79-01-6	Trichloroethene (TCE)	**350**	DJ	2500	150	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	150	
75-01-4	Vinyl Chloride	**530**	DJ	2500	150	
156-59-2	cis-1,2-Dichloroethene	**27000**	D	2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	150	
179601-23-1	m,p-Xylenes	2500	U	2500	410	
123-86-4	n-Butyl Acetate	2500	U	2500	150	
95-47-6	o-Xylene	2500	U	2500	200	
156-60-5	trans-1,2-Dichloroethene	**420**	DJ	2500	150	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/9/11 21:29	
Dibromofluoromethane	109	89-119	2/9/11 21:29	
Toluene-d8	109	87-121	2/9/11 21:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1449
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 15:56
Sample Name:	LC34-IW0067D1-068.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5504.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**0.46**	J	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	2/ 3/11 1449
Sample Matrix:	Water	**Date Received:**	2/ 4/11
		Date Analyzed:	2/8/11 15:56
Sample Name:	LC34-IW0067D1-068.0-20110203	**Units:**	µg/L
Lab Code:	R1100666-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5504.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	**0.88**	J	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/8/11 15:56	
Dibromofluoromethane	108	89-119	2/8/11 15:56	
Toluene-d8	109	87-121	2/8/11 15:56	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/8/11 11:27
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101297-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5496.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/8/11 11:27
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101297-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235312
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020811\U5496.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/8/11 11:27	
Dibromofluoromethane	108	89-119	2/8/11 11:27	
Toluene-d8	109	87-121	2/8/11 11:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/9/11 13:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101318-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235572
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020911\U5515.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.30	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.30	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.40	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.66	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.36	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.34	
71-36-3	n-Butanol	50	U	50	6.7	
78-93-3	2-Butanone (MEK)	10	U	10	1.0	
591-78-6	2-Hexanone	10	U	10	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.34	
67-64-1	Acetone	20	U	20	1.6	
71-43-2	Benzene	5.0	U	5.0	0.31	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.41	
75-25-2	Bromoform	5.0	U	5.0	0.30	
74-83-9	Bromomethane	5.0	U	5.0	0.40	
75-15-0	Carbon Disulfide	10	U	10	0.35	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.36	
108-90-7	Chlorobenzene	5.0	U	5.0	0.30	
75-00-3	Chloroethane	5.0	U	5.0	0.30	
67-66-3	Chloroform	5.0	U	5.0	0.30	
74-87-3	Chloromethane	5.0	U	5.0	0.46	
110-82-7	Cyclohexane	10	U	10	0.30	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	
75-09-2	Dichloromethane	5.0	U	5.0	0.30	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100666
Project:	ESTCP PED LC34 2/3/11/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/9/11 13:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1101318-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	235572
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\020911\U5515.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	
79-20-9	Methyl Acetate	10	U	10	0.66	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.30	
108-87-2	Methylcyclohexane	10	U	10	0.30	
100-42-5	Styrene	5.0	U	5.0	0.35	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.42	
108-88-3	Toluene	5.0	U	5.0	0.30	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.30	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.30	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.30	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.81	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.30	
95-47-6	o-Xylene	5.0	U	5.0	0.40	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.30	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/9/11 13:10	
Dibromofluoromethane	108	89-119	2/9/11 13:10	
Toluene-d8	109	87-121	2/9/11 13:10	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/3/11/ TR0272
Sample Matrix: Water

Service Request: R1100666
Date Analyzed: 2/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235312

Lab Control Sample
RQ1101297-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.3	20.0	87	72 - 128
1,1,2,2-Tetrachloroethane	18.8	20.0	94	72 - 131
1,1,2-Trichloroethane	18.9	20.0	95	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.8	20.0	89	71 - 134
1,1-Dichloroethane (1,1-DCA)	16.9	20.0	85	76 - 122
1,1-Dichloroethene (1,1-DCE)	16.8	20.0	84	72 - 129
1,2,4-Trichlorobenzene	20.0	20.0	100	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84	62 - 131
1,2-Dibromoethane	19.2	20.0	96	78 - 125
1,2-Dichlorobenzene	19.1	20.0	95	79 - 124
1,2-Dichloroethane	20.8	20.0	104	78 - 126
1,2-Dichloropropane	17.9	20.0	90	80 - 123
1,3-Dichlorobenzene	19.0	20.0	95	78 - 124
1,4-Dichlorobenzene	18.5	20.0	92	78 - 123
n-Butanol	1010	1000	101	70 - 130
2-Butanone (MEK)	18.4	20.0	92	60 - 133
2-Hexanone	18.3	20.0	92	61 - 131
4-Methyl-2-pentanone	19.1	20.0	95	61 - 132
Acetone	18.2	20.0	91	59 - 140
Benzene	17.6	20.0	88	78 - 121
Bromodichloromethane	19.2	20.0	96	80 - 125
Bromoform	20.8	20.0	104	73 - 132
Bromomethane	15.9	20.0	80	57 - 144
Carbon Disulfide	18.5	20.0	92	59 - 138
Carbon Tetrachloride	18.4	20.0	92	69 - 135
Chlorobenzene	18.6	20.0	93	80 - 121
Chloroethane	18.1	20.0	91	71 - 130
Chloroform	18.4	20.0	92	78 - 125
Chloromethane	18.6	20.0	93	62 - 133
Cyclohexane	20.2	20.0	101	67 - 127
Dibromochloromethane	20.1	20.0	100	78 - 133
Dichlorodifluoromethane (CFC 12)	21.6	20.0	108	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/3/11/ TR0272
Sample Matrix: Water

Service Request: R1100666
Date Analyzed: 2/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235312

Lab Control Sample
RQ1101297-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	16.5	20.0	82	75 - 125
Ethylbenzene	17.9	20.0	90	78 - 123
Isopropylbenzene (Cumene)	20.6	20.0	103	73 - 133
Methyl Acetate	15.8	20.0	79	57 - 157
Methyl tert-Butyl Ether	17.9	20.0	89	75 - 126
Methylcyclohexane	19.7	20.0	98	64 - 133
Styrene	18.5	20.0	92	80 - 132
Tetrachloroethene (PCE)	19.2	20.0	96	72 - 131
Toluene	18.8	20.0	94	78 - 122
Trichloroethene (TCE)	17.8	20.0	89	74 - 127
Trichlorofluoromethane (CFC 11)	19.9	20.0	100	71 - 139
Vinyl Chloride	20.2	20.0	101	71 - 136
cis-1,2-Dichloroethene	17.0	20.0	85	78 - 122
cis-1,3-Dichloropropene	17.2	20.0	86	77 - 125
m,p-Xylenes	36.3	40.0	91	79 - 126
n-Butyl Acetate	18.4	20.0	92	54 - 127
o-Xylene	17.8	20.0	89	79 - 126
trans-1,2-Dichloroethene	16.1	20.0	81	75 - 121
trans-1,3-Dichloropropene	18.2	20.0	91	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/3/11/ TR0272
Sample Matrix: Water

Service Request: R1100666
Date Analyzed: 2/ 9/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235572

Lab Control Sample
RQ1101318-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.7	20.0	88	72 - 128
1,1,2,2-Tetrachloroethane	17.2	20.0	86	72 - 131
1,1,2-Trichloroethane	17.9	20.0	89	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.1	20.0	95	71 - 134
1,1-Dichloroethane (1,1-DCA)	17.2	20.0	86	76 - 122
1,1-Dichloroethene (1,1-DCE)	16.5	20.0	83	72 - 129
1,2,4-Trichlorobenzene	19.7	20.0	99	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.4	20.0	82	62 - 131
1,2-Dibromoethane	18.0	20.0	90	78 - 125
1,2-Dichlorobenzene	18.1	20.0	91	79 - 124
1,2-Dichloroethane	19.9	20.0	99	78 - 126
1,2-Dichloropropane	17.3	20.0	86	80 - 123
1,3-Dichlorobenzene	18.3	20.0	91	78 - 124
1,4-Dichlorobenzene	18.4	20.0	92	78 - 123
n-Butanol	1160	1000	116	70 - 130
2-Butanone (MEK)	18.0	20.0	90	60 - 133
2-Hexanone	19.7	20.0	98	61 - 131
4-Methyl-2-pentanone	20.3	20.0	102	61 - 132
Acetone	19.1	20.0	95	59 - 140
Benzene	17.5	20.0	87	78 - 121
Bromodichloromethane	18.3	20.0	92	80 - 125
Bromoform	19.9	20.0	99	73 - 132
Bromomethane	16.5	20.0	82	57 - 144
Carbon Disulfide	21.2	20.0	106	59 - 138
Carbon Tetrachloride	18.9	20.0	95	69 - 135
Chlorobenzene	18.0	20.0	90	80 - 121
Chloroethane	17.5	20.0	88	71 - 130
Chloroform	17.8	20.0	89	78 - 125
Chloromethane	18.5	20.0	92	62 - 133
Cyclohexane	19.0	20.0	95	67 - 127
Dibromochloromethane	18.8	20.0	94	78 - 133
Dichlorodifluoromethane (CFC 12)	21.9	20.0	109	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/3/11/ TR0272
Sample Matrix: Water

Service Request: R1100666
Date Analyzed: 2/ 9/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 235572

Lab Control Sample
RQ1101318-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	16.2	20.0	81	75 - 125
Ethylbenzene	17.7	20.0	89	78 - 123
Isopropylbenzene (Cumene)	20.4	20.0	102	73 - 133
Methyl Acetate	16.0	20.0	80	57 - 157
Methyl tert-Butyl Ether	17.4	20.0	87	75 - 126
Methylcyclohexane	17.7	20.0	88	64 - 133
Styrene	17.9	20.0	90	80 - 132
Tetrachloroethene (PCE)	19.9	20.0	99	72 - 131
Toluene	18.6	20.0	93	78 - 122
Trichloroethene (TCE)	18.3	20.0	92	74 - 127
Trichlorofluoromethane (CFC 11)	20.6	20.0	103	71 - 139
Vinyl Chloride	20.4	20.0	102	71 - 136
cis-1,2-Dichloroethene	16.9	20.0	85	78 - 122
cis-1,3-Dichloropropene	16.4	20.0	82	77 - 125
m,p-Xylenes	36.5	40.0	91	79 - 126
n-Butyl Acetate	17.4	20.0	87	54 - 127
o-Xylene	17.8	20.0	89	79 - 126
trans-1,2-Dichloroethene	16.0	20.0	80	75 - 121
trans-1,3-Dichloropropene	17.5	20.0	87	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

PAGE \ OF \

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate					REMARKS
LC34-IJ0019-037.0-20110203	2/3/11	1149	-001	GW	3	3					
LC34-IJ0020-052.0-20110203	"	1357	-002	GW	3	3					
LC34-IJ0015-037.0-20110203	"	0954	-003	GW	3	3					
LC34-IJ0016-052.0-20110203	2/3/11	1042	-004	GW	3	3					
LC34-FW00021-0275-20110203	2/3/11	0846	-005	GW	3	3					
LC34-FW00670 1-068.0-20110203	2/3/11	1449	-006	GW	3	3					

TURNAROUND REQUIREMENTS

_____ 24 hr _____ 48 hr _____ 5 BD

__X__ Standard (15 BD)

_____ Provide FAX Preliminary Results

Requested Report Date: 18 Feb

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1100666
GeoSyntec Consultants
ESTCP PED LC34 2/3/11

Invoice Information

P.O. # _____

Bill to: TR0272

RELINQUISHED BY:

Signature: [signature]

Printed Name: Joseph Barrett

Firm: Geosyntec

Date/Time: 2/3/11 1553

RECEIVED BY:

Signature: B Doyle

Printed Name: B Doyle

Firm: CTS

Date/Time: 2/4/11 0928

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1100dda.

Cooler received on 2/4/11 by: BD **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were (Ice) or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	1°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 2/4 @ 0934

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 2/4/11

Cooler Breakdown: Date: 2/4/11 Time: 1108 by: CMK

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: O-235-002

Other Comments:

PC Secondary Review: KB 2/22/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services
1 Mustard Street, Suite 250 | Rochester, NY 14609 | 585-288-5380 | 585-288-8475 fax | www.caslab.com

January 31, 2011

Service Request No: R1100446

Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP LC34 TR0272

Dear Cory:

Enclosed are the results of the sample(s) submitted to our laboratory on January 25, 2011. For your reference, these analyses have been assigned our service request number **R1100446**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

00001

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1100446

Lab ID	Client ID
R1100446-001	LC34-WS0001-0000-20110124

All samples were received in good condition unless otherwise noted on the cooler receipt and preservation check form located at the end of this report.

All samples were preserved in accordance with approved analytical methods.

All samples have been analyzed by the approved methods cited on the analytical results pages.

All holding times and associated QC were within limits.

No analytical or QC problems were encountered.

All sampling activities performed by CAS personnel have been in accordance with "CAS Field Procedures and Measurements Manual" or by client specifications.

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Navy Facilities Engineering Service Center Approved
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158
West Virginia ID # 292

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	1/24/11 0845
Sample Matrix:	Soil	**Date Received:**	1/25/11
Sample Name:	LC34-WS0001-0000-20110124		
Lab Code:	R1100446-001	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**88.1**		Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	1/24/11 0845
Sample Matrix:	Soil	**Date Received:**	1/25/11
Sample Name:	LC34-WS0001-0000-20110124		
Lab Code:	R1100446-001	**Basis:**	Dry
		Percent Solids:	88.1

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Total	6010C	**1.6**		mg/Kg	1.1	1	1/25/11	1/27/11 12:33	
Barium, Total	6010C	**7.3**		mg/Kg	2.2	1	1/25/11	1/27/11 12:33	
Cadmium, Total	6010C	0.56	U	mg/Kg	0.56	1	1/25/11	1/27/11 12:33	
Chromium, Total	6010C	**7.1**		mg/Kg	1.1	1	1/25/11	1/27/11 12:33	
Lead, Total	6010C	**5.9**		mg/Kg	5.6	1	1/25/11	1/27/11 12:33	
Mercury, Total	7471B	0.056	U	mg/Kg	0.056	1	1/26/11	1/26/11 14:15	
Selenium, Total	6010C	1.1	U	mg/Kg	1.1	1	1/25/11	1/27/11 12:33	
Silver, Total	6010C	1.1	U	mg/Kg	1.1	1	1/25/11	1/27/11 12:33	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	1/24/11 0845
Sample Matrix:	Soil	**Date Received:**	1/25/11
		Date Analyzed:	1/25/11 16:39
Sample Name:	LC34-WS0001-0000-20110124	**Units:**	µg/Kg
Lab Code:	R1100446-001	**Basis:**	Dry
		Percent Solids:	88.1

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	233307
Data File Name:	H9556.D	**Instrument Name:**	R-MS-07
		Dilution Factor:	1.25

CAS No.	Analyte Name	Result	Q	MRL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	7.1	U	7.1	
79-34-5	1,1,2,2-Tetrachloroethane	7.1	U	7.1	
79-00-5	1,1,2-Trichloroethane	7.1	U	7.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	7.1	U	7.1	
75-35-4	1,1-Dichloroethene (1,1-DCE)	7.1	U	7.1	
107-06-2	1,2-Dichloroethane	7.1	U	7.1	
78-87-5	1,2-Dichloropropane	7.1	U	7.1	
78-93-3	2-Butanone (MEK)	14	U	14	
591-78-6	2-Hexanone	14	U	14	
108-10-1	4-Methyl-2-pentanone	14	U	14	
67-64-1	Acetone	28	U	28	
71-43-2	Benzene	7.1	U	7.1	
75-27-4	Bromodichloromethane	7.1	U	7.1	
75-25-2	Bromoform	7.1	U	7.1	
74-83-9	Bromomethane	7.1	U	7.1	
75-15-0	Carbon Disulfide	14	U	14	
56-23-5	Carbon Tetrachloride	7.1	U	7.1	
108-90-7	Chlorobenzene	7.1	U	7.1	
75-00-3	Chloroethane	7.1	U	7.1	
67-66-3	Chloroform	7.1	U	7.1	
74-87-3	Chloromethane	7.1	U	7.1	
124-48-1	Dibromochloromethane	7.1	U	7.1	
75-09-2	Dichloromethane	7.1	U	7.1	
100-41-4	Ethylbenzene	7.1	U	7.1	
100-42-5	Styrene	7.1	U	7.1	
127-18-4	Tetrachloroethene (PCE)	7.1	U	7.1	
108-88-3	Toluene	7.1	U	7.1	
79-01-6	Trichloroethene (TCE)	7.1	U	7.1	
75-01-4	Vinyl Chloride	**22**		7.1	
156-59-2	cis-1,2-Dichloroethene	**190**		7.1	
10061-01-5	cis-1,3-Dichloropropene	7.1	U	7.1	
179601-23-1	m,p-Xylenes	7.1	U	7.1	
95-47-6	o-Xylene	7.1	U	7.1	
156-60-5	trans-1,2-Dichloroethene	7.1	U	7.1	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	1/24/11 0845
Sample Matrix:	Soil	**Date Received:**	1/25/11
		Date Analyzed:	1/25/11 16:39
Sample Name:	LC34-WS0001-0000-20110124	**Units:**	µg/Kg
Lab Code:	R1100446-001	**Basis:**	Dry
		Percent Solids:	88.1

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	233307
Data File Name:	H9556.D	**Instrument Name:**	R-MS-07
		Dilution Factor:	1.25

CAS No.	Analyte Name	Result	Q	MRL	Note
10061-02-6	trans-1,3-Dichloropropene	7.1	U	7.1	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	59-132	1/25/11 16:39	
Dibromofluoromethane	94	65-136	1/25/11 16:39	
Toluene-d8	105	75-126	1/25/11 16:39	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	1/24/11 0845
Sample Matrix:	Soil	**Date Received:**	1/25/11
		Pre-Prep Date:	1/25/11
		Date Analyzed:	1/26/11 20:52
Sample Name:	LC34-WS0001-0000-20110124	**Units:**	µg/L
Lab Code:	R1100446-001	**Basis:**	As Received

Toxicity Characteristics Leachate Procedure (TCLP)
TCLP Volatile Organics by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	233944
Pre-Prep Method:	EPA 1311		
Data File Name:	D0235.D	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	
107-06-2	1,2-Dichloroethane	50	U	50	
78-93-3	2-Butanone (MEK)	100	U	100	
71-43-2	Benzene	50	U	50	
56-23-5	Carbon Tetrachloride	50	U	50	
108-90-7	Chlorobenzene	50	U	50	
67-66-3	Chloroform	50	U	50	
127-18-4	Tetrachloroethene (PCE)	50	U	50	
79-01-6	Trichloroethene (TCE)	50	U	50	
75-01-4	Vinyl Chloride	50	U	50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	1/26/11 20:52	
Dibromofluoromethane	109	89-119	1/26/11 20:52	
Toluene-d8	111	87-121	1/26/11 20:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1100446-MB1	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1100446-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	1/26/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1100446-MB	**Basis:**	Dry

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Total	6010C	1.0	U	mg/Kg	1.0	1	1/25/11	1/27/11 10:08	
Barium, Total	6010C	2.0	U	mg/Kg	2.0	1	1/25/11	1/27/11 10:08	
Cadmium, Total	6010C	0.50	U	mg/Kg	0.50	1	1/25/11	1/27/11 10:08	
Chromium, Total	6010C	1.0	U	mg/Kg	1.0	1	1/25/11	1/27/11 10:08	
Lead, Total	6010C	5.0	U	mg/Kg	5.0	1	1/25/11	1/27/11 10:08	
Mercury, Total	7471B	0.050	U	mg/Kg	0.050	1	1/26/11	1/26/11 13:45	
Selenium, Total	6010C	1.0	U	mg/Kg	1.0	1	1/25/11	1/27/11 10:08	
Silver, Total	6010C	1.0	U	mg/Kg	1.0	1	1/25/11	1/27/11 10:08	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	1/25/11 13:52
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1100582-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	233307
Data File Name:	H9552.D	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	
78-93-3	2-Butanone (MEK)	10	U	10	
591-78-6	2-Hexanone	10	U	10	
108-10-1	4-Methyl-2-pentanone	10	U	10	
67-64-1	Acetone	20	U	20	
71-43-2	Benzene	5.0	U	5.0	
75-27-4	Bromodichloromethane	5.0	U	5.0	
75-25-2	Bromoform	5.0	U	5.0	
74-83-9	Bromomethane	5.0	U	5.0	
75-15-0	Carbon Disulfide	10	U	10	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	
108-90-7	Chlorobenzene	5.0	U	5.0	
75-00-3	Chloroethane	5.0	U	5.0	
67-66-3	Chloroform	5.0	U	5.0	
74-87-3	Chloromethane	5.0	U	5.0	
124-48-1	Dibromochloromethane	5.0	U	5.0	
75-09-2	Dichloromethane	5.0	U	5.0	
100-41-4	Ethylbenzene	5.0	U	5.0	
100-42-5	Styrene	5.0	U	5.0	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	
108-88-3	Toluene	5.0	U	5.0	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	
75-01-4	Vinyl Chloride	5.0	U	5.0	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	
179601-23-1	m,p-Xylenes	5.0	U	5.0	
95-47-6	o-Xylene	5.0	U	5.0	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	1/25/11 13:52
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1100582-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	233307
Data File Name:	H9552.D	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	59-132	1/25/11 13:52	
Dibromofluoromethane	106	65-136	1/25/11 13:52	
Toluene-d8	109	75-126	1/25/11 13:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	1/26/11 12:52
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1100814-01	**Basis:**	As Received

TCLP Volatile Organics by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	233944
Data File Name:	D0219.D	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	
78-93-3	2-Butanone (MEK)	10	U	10	
71-43-2	Benzene	5.0	U	5.0	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	
108-90-7	Chlorobenzene	5.0	U	5.0	
67-66-3	Chloroform	5.0	U	5.0	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	
75-01-4	Vinyl Chloride	5.0	U	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	1/26/11 12:52	
Dibromofluoromethane	109	89-119	1/26/11 12:52	
Toluene-d8	110	87-121	1/26/11 12:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1100446
Project:	ESTCP LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Pre-Prep Date:	1/25/11
		Date Analyzed:	1/26/11 20:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1100739-01	**Basis:**	As Received

Toxicity Characteristics Leachate Procedure (TCLP)
TCLP Volatile Organics by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	233944
Pre-Prep Method:	EPA 1311		
Data File Name:	D0234.D	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	
78-93-3	2-Butanone (MEK)	10	U	10	
71-43-2	Benzene	5.0	U	5.0	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	
108-90-7	Chlorobenzene	5.0	U	5.0	
67-66-3	Chloroform	5.0	U	5.0	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	
75-01-4	Vinyl Chloride	5.0	U	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	1/26/11 20:22	
Dibromofluoromethane	109	89-119	1/26/11 20:22	
Toluene-d8	112	87-121	1/26/11 20:22	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 TR0272
Sample Matrix: Soil

Service Request: R1100446
Date Analyzed: 1/26/11 - 1/27/11

Lab Control Sample Summary
Inorganic Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1100446-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total	6010C	87.7	88.3	99	78.1 - 122
Barium, Total	6010C	468	432	108	81.3 - 118
Cadmium, Total	6010C	94.4	91.0	104	81.4 - 118
Chromium, Total	6010C	154	144	107	80.6 - 119
Lead, Total	6010C	112	104	108	79.0 - 121
Mercury, Total	7471B	7.63	6.8	112	72 - 128
Selenium, Total	6010C	192	192	100	80.2 - 119
Silver, Total	6010C	79.0	76.4	103	66.2 - 133

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 TR0272
Sample Matrix: Soil

Service Request: R1100446
Date Analyzed: 1/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 233307

Lab Control Sample
RQ1100582-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.6	20.0	93	72 - 127
1,1,2,2-Tetrachloroethane	18.9	20.0	95	72 - 133
1,1,2-Trichloroethane	18.7	20.0	93	75 - 123
1,1-Dichloroethane (1,1-DCA)	18.6	20.0	93	75 - 122
1,1-Dichloroethene (1,1-DCE)	18.7	20.0	93	74 - 129
1,2-Dichloroethane	19.9	20.0	99	76 - 127
1,2-Dichloropropane	18.6	20.0	93	78 - 121
2-Butanone (MEK)	20.3	20.0	101	64 - 137
2-Hexanone	20.3	20.0	102	64 - 138
4-Methyl-2-pentanone	20.6	20.0	103	64 - 136
Acetone	20.9	20.0	104	55 - 159
Benzene	18.9	20.0	94	76 - 119
Bromodichloromethane	19.0	20.0	95	75 - 124
Bromoform	19.5	20.0	98	67 - 129
Bromomethane	18.5	20.0	92	53 - 143
Carbon Disulfide	18.7	20.0	94	58 - 139
Carbon Tetrachloride	19.7	20.0	99	62 - 136
Chlorobenzene	18.6	20.0	93	75 - 122
Chloroethane	20.0	20.0	100	70 - 130
Chloroform	18.8	20.0	94	77 - 123
Chloromethane	18.9	20.0	95	60 - 137
Dibromochloromethane	18.7	20.0	93	70 - 133
Dichloromethane	18.5	20.0	93	76 - 121
Ethylbenzene	19.0	20.0	95	73 - 125
Styrene	17.6	20.0	88	76 - 132
Tetrachloroethene (PCE)	19.7	20.0	98	71 - 132
Toluene	18.7	20.0	94	75 - 122
Trichloroethene (TCE)	19.0	20.0	95	74 - 122
Vinyl Chloride	21.7	20.0	108	71 - 138
cis-1,2-Dichloroethene	17.7	20.0	89	75 - 119
cis-1,3-Dichloropropene	18.4	20.0	92	76 - 122
m,p-Xylenes	37.7	40.0	94	70 - 128

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 TR0272
Sample Matrix: Soil

Service Request: R1100446
Date Analyzed: 1/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 233307

Analyte Name	Lab Control Sample RQ1100582-03 Result	Spike Amount	% Rec	% Rec Limits
o-Xylene	18.4	20.0	92	69 - 126
trans-1,2-Dichloroethene	18.5	20.0	93	73 - 121
trans-1,3-Dichloropropene	17.4	20.0	87	73 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 TR0272
Sample Matrix: Soil

Service Request: R1100446
Date Analyzed: 1/26/11

Lab Control Sample Summary
TCLP Volatile Organics by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: As Received

Analysis Lot: 233944

Analyte Name	Lab Control Sample RQ1100814-02 Result	Spike Amount	% Rec	% Rec Limits
1,1-Dichloroethene (1,1-DCE)	19.7	20.0	98	72 - 129
1,2-Dichloroethane	20.5	20.0	102	78 - 126
2-Butanone (MEK)	21.1	20.0	106	60 - 133
Benzene	18.7	20.0	94	78 - 121
Carbon Tetrachloride	18.6	20.0	93	69 - 135
Chlorobenzene	18.9	20.0	94	80 - 121
Chloroform	19.6	20.0	98	78 - 125
Tetrachloroethene (PCE)	18.6	20.0	93	72 - 131
Trichloroethene (TCE)	18.5	20.0	92	74 - 127
Vinyl Chloride	24.1	20.0	120	71 - 136

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services™ CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

1 Mustard Street, Suite 250, Rochester, NY 14609 | 585.288.5380 | 800.695.7222 | 585.288.8475 (fax) PAGE 1 OF 1

Project Name: ESTCP LC34	Project Number: TR0272
Project Manager: Rebecca Daprato	Report CC:
Company/Address: GeoSyntec Consultants 6770 S. Washington Ave. Suite 3 Titusville, FL 32780	
Phone #: 321-269-5889	E-mail: Rdaprato@geosyntec.com
Sampler's Signature:	Sampler's Printed Name: Neil Stapley

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 0 0 6

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOA's ☐ 8260 ☐ 624 ☐ CLP	GC/MS SVOA's ☐ 8270 ☐ 625	GC VOA's ☐ 8021 ☐ 601/602	PESTICIDES ☐ 8081 ☐ 608	PCB's ☐ 8082 ☐ 608	METALS, TOTAL (List in comments below)	METALS: ~~DISSOLVED~~ (List in comments below)	TCLP VOCs EPA 1311	VOCs (Low Level) (Encore)	REMARKS/ ALTERNATE DESCRIPTION
LC34-WS0001-0000-20110124	-001	1/24/11	0845	Soil	1						X	X	X		

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals RCRA

Abrev. Sample ID on Sample containers

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day X 3 day
____ 4 day ____ 5 day
____ Standard

REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with R
Edata X Yes ____ No

INVOICE INFORMATION
PO #:
BILL TO: TR0272 104

R1100446
GeoSyntec Consultants
ESTCP LC34 TR0272

STATE WHERE SAMPLES WERE COLLECTED: Florida

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature	Fed Ex		Daniel Wahl		
Printed Name: Neil Stapley			Printed Name: Daniel Wahl		
Firm: Geosyntec			Firm: CAS		
Date/Time: 1/24/11 1730	1/24/11 1730		1/25/11 0929		

Distribution: White - Lab Copy; Yellow - Return To Originator

SCOC Rev. 10/2010

Cooler Receipt And Preservation Check Form

Project/Client Geosmtec Folder Number R11 00446.

Cooler received on 1/25/11 by: DPW **COURIER:** CAS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	(N/A)		
5.	Were **Ice** or **Ice packs** present?	YES	NO			
6.	Where did the bottles originate?	CAS/ROC, CLIENT				
7.	Temperature of cooler(s) upon receipt:	1.4°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 1/25/11 / 0936

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 1/25/11

Cooler Breakdown: Date: 1/25/11 Time: 1105 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-			*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet			
	Zn Aceta	-	-						
	HCl	*	*						

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 092710-1MM, 081610-166, BDB26107E

Other Comments:

PC Secondary Review: KB 2/1/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services Inc.

A FULL SERVICE ENVIRONMENTAL LABORATORY

May 5, 2011

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, Ontario, Canada N1G 5G3

Re: Project: ESTCP PED LC34/TRO272
CAS Submission # R1101575 Revised

Dear Mr. Repta,

Enclosed is the revised analytical data report for the above referenced project. The initial report did not meet the NASA requirements for issuing 1 data point per location per compound. We have revised this report to merge all VOC data and report any standard calibration exceedences from the diluted analytical run. All TOC data is reported as the average of the quad results.

Please contact me at (585)-288-5380 if you have questions regarding this information.

Sincerely,
COLUMBIA ANALYTICAL SERVICES

Karen Bunker
Project Manager

1 Mustard Street, Suite 250 • Rochester, NY 14609 • Tele: (585) 288-5380 • Fax: (585) 288-8475

Client:	Geosyntec	**Service Request No.:**	R1101575
Project:	ESTCP PED LC34/ TR0272 3/22,28,29/11	**Date Received:**	3/24,30/11
Sample Matrix:	Water		

CASE NARRATIVE
Revised: 5/5/11

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Twenty-four (24) water samples including two (2) Trip Blanks were collected by the client on 3/22/11, 3/28-29/11 and were received for analysis at Columbia Analytical Services on 3/24/11 and 3/30/11 via a national courier. The samples were received at sample temperatures of 6 and 3°C respectively, within the 0-6°C guidelines. One (1) Trip Blank vial had air bubbles in 1 of the 3 vials received for the samples, no data is affected.

Several Sample ID's were revised as per a client email from 4/5/11. Permission to analyze Trip Blank LC34-TB 20110322-01 from 3/24/11 (not noted on the Chain of Custody) was given via the client on 3/25/11.

Volatile Organic Compounds

Twenty-four (24) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) water samples were analyzed for gases by GC method RSK 175.

Initial and Continuing Calibration Criteria was met for all samples except the following 8260 compounds:
Dichlorodifluoromethane %Differences (%D) was out at -27.2 (criteria is ±20%) on the 3/2811 CCV
n-Butanol (-33.4), MEK (-21.9), Acetone (-27.4), and Dichlorodifluoromethane (26.6) were outside limits on the 3/29/11 CCV.
When CCV %D criteria are not met, it may indicate some bias in the quantitation for that target compound in the associated samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LCSD- RSK's only) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

Samples were analyzed within 7 days from collection, the holding time for unpreserved vials.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burke **Date** 5/5/11

HPLC Methodology

Two (2) water samples were analyzed for Organic Acids by HPLC.

All Initial and Continuing Calibration Criteria were met.

Batch QC is included in the report. All LCS and LCSD recoveries were within QC acceptance limits. All RPD calculations were acceptable.

All samples were analyzed within the proper holding time for the method.

The Laboratory Method Blanks were free from contamination.

No problems were encountered during the analysis of these samples.

Inorganic Parameters

Two (2) water samples were analyzed for TOC by method 9060 and Bromide and Iodide by IC method 300.0. Two (2) additional water samples were analyzed for Bromide, Iodide, TOC and Sulfide by method SM4500-S2-F, Chloride, Nitrate and Nitrite by IC Method 300.0, and Alkalinity by SM2320 B. The TOC Quad average has been reported.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

All holding times were met except for the Nitrate and Nitrite analyses which were received outside the 48 hour holding time for these methods. The data is flagged as "*". The analyses were completed as soon as possible upon receipt at the laboratory.

Location LC34-RW0007-038.5-20110328 (CAS Submission # R1101575-013) was repeated for Nitrite due to carry over from a nearby peak on the initial run. As per client instructions, only the latter data has been reported.

All Laboratory Method Blanks were free from contamination.

Approved by Karen Burke **Date** 5/5/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1101575

Lab ID	Client ID
R1101575-001	LC34-RW0007-038.5-20110322
R1101575-002	LC34-IW0002I-027.5-20110322
R1101575-003	LC34-IW0002D-037.5-20110322
R1101575-004	LC34-BW0001C-038.5-20110322
R1101575-005	LC34-BW0002C-038.5-20110322
R1101575-006	LC34-BW0003C-038.5-20110322
R1101575-007	LC34-RW0008-052.0-20110322
R1101575-008	LC34-IW0002D1-052.5-20110322
R1101575-009	LC34-BW0001E-052.5-20110322
R1101575-010	LC34-BW0003E-052.5-20110322
R1101575-011	LC34-FD-20010322-01
R1101575-012	LC34-TB-20110322-01
R1101575-013	LC34-RW0007-038.5-20110328
R1101575-014	LC34-IW0002I-027.5-20110329
R1101575-015	LC34-IW0002D-037.5-20110328
R1101575-016	LC34-BW0001C-038.5-20110329
R1101575-017	LC34-BW0002C-038.5-20110329
R1101575-018	LC34-BW0003C-038.5-20110329
R1101575-019	LC34-RW0008-052.0-20110328
R1101575-020	LC34-IW0002DI-052.5-20110328
R1101575-021	LC34-BW0001E-052.5-20110329
R1101575-022	LC34-BW0003E-052.5-20110329
R1101575-023	LC34-FD-20110328-01
R1101575-024	LC34-TB-20110329-01

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1029
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-RW0007-038.5-20110322		
Lab Code:	R1101575-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.7**		mg/L	1.0	10	NA	3/29/11 19:51	
Carbon, Total Organic (TOC), Average	9060	**5.3**		mg/L	1.0	1	NA	3/25/11 22:38	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	4/7/11 14:08	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1029
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-RW0007-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	**7400**		1300	100	250	NA	3/29/11 14:16		240517	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	3/29/11 14:16		240517	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	3/29/11 14:16		240517	
1,2-Dibromoethane	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	3/29/11 14:16		240517	
1,2-Dichloroethane	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
1,2-Dichloropropane	1300	U	1300	170	250	NA	3/29/11 14:16		240517	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	3/29/11 14:16		240517	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	3/29/11 14:16		240517	
n-Butanol	13000	U	13000	1700	250	NA	3/29/11 14:16		240517	
2-Butanone (MEK)	2500	U	2500	250	250	NA	3/29/11 14:16		240517	
2-Hexanone	2500	U	2500	100	250	NA	3/29/11 14:16		240517	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	3/29/11 14:16		240517	
Acetone	5000	U	5000	400	250	NA	3/29/11 14:16		240517	
Benzene	1300	U	1300	78	250	NA	3/29/11 14:16		240517	
Bromodichloromethane	1300	U	1300	110	250	NA	3/29/11 14:16		240517	
Bromoform	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
Bromomethane	1300	U	1300	100	250	NA	3/29/11 14:16		240517	
Carbon Disulfide	2500	U	2500	88	250	NA	3/29/11 14:16		240517	
Carbon Tetrachloride	1300	U	1300	90	250	NA	3/29/11 14:16		240517	
Chlorobenzene	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
Chloroethane	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
Chloroform	**100**	J	1300	75	250	NA	3/29/11 14:16		240517	
Chloromethane	1300	U	1300	120	250	NA	3/29/11 14:16		240517	
Cyclohexane	2500	U	2500	75	250	NA	3/29/11 14:16		240517	
Dibromochloromethane	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	3/29/11 14:16		240517	
Dichloromethane	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
Ethylbenzene	1300	U	1300	110	250	NA	3/29/11 14:16		240517	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	3/29/11 14:16		240517	
Methyl Acetate	2500	U	2500	170	250	NA	3/29/11 14:16		240517	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1029
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-RW0007-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
Methylcyclohexane	2500	U	2500	75	250	NA	3/29/11 14:16		240517	
Styrene	1300	U	1300	88	250	NA	3/29/11 14:16		240517	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	3/29/11 14:16		240517	
Toluene	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
Trichloroethene (TCE)	**14000**		1300	75	250	NA	3/29/11 14:16		240517	
Trichlorofluoromethane (CFC 11)	**120**	J	1300	75	250	NA	3/29/11 14:16		240517	
Vinyl Chloride	**610**	J	1300	75	250	NA	3/29/11 14:16		240517	
cis-1,2-Dichloroethene	**27000**		1300	75	250	NA	3/29/11 14:16		240517	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
m,p-Xylenes	1300	U	1300	210	250	NA	3/29/11 14:16		240517	
n-Butyl Acetate	1300	U	1300	75	250	NA	3/29/11 14:16		240517	
o-Xylene	1300	U	1300	100	250	NA	3/29/11 14:16		240517	
trans-1,2-Dichloroethene	**210**	J	1300	75	250	NA	3/29/11 14:16		240517	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/29/11 14:16		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	3/29/11 14:16	
Dibromofluoromethane	102	89-119	3/29/11 14:16	
Toluene-d8	101	87-121	3/29/11 14:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1029
Sample Matrix:	Water	**Date Received:**	3/24/11
		Date Analyzed:	3/24/11 17:33
Sample Name:	LC34-RW0007-038.5-20110322	**Units:**	mg/L
Lab Code:	R1101575-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	240058
Data File Name:	J:\ACQUDATA\HPLC05\DATA\032411\X0005581.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**33**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	**1.2**		1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1434
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-IW0002I-027.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
1,1,2-Trichloro-1,2,2-trifluoroethane	**53000**		2500	200	500	NA	3/28/11 14:07		240184	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	3/28/11 14:07		240184	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	3/28/11 14:07		240184	
1,2-Dibromoethane	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	3/28/11 14:07		240184	
1,2-Dichloroethane	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
1,2-Dichloropropane	2500	U	2500	330	500	NA	3/28/11 14:07		240184	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	3/28/11 14:07		240184	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	3/28/11 14:07		240184	
n-Butanol	25000	U	25000	3400	500	NA	3/28/11 14:07		240184	
2-Butanone (MEK)	5000	U	5000	500	500	NA	3/28/11 14:07		240184	
2-Hexanone	5000	U	5000	200	500	NA	3/28/11 14:07		240184	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	3/28/11 14:07		240184	
Acetone	10000	U	10000	800	500	NA	3/28/11 14:07		240184	
Benzene	2500	U	2500	160	500	NA	3/28/11 14:07		240184	
Bromodichloromethane	2500	U	2500	210	500	NA	3/28/11 14:07		240184	
Bromoform	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Bromomethane	2500	U	2500	200	500	NA	3/28/11 14:07		240184	
Carbon Disulfide	5000	U	5000	180	500	NA	3/28/11 14:07		240184	
Carbon Tetrachloride	2500	U	2500	180	500	NA	3/28/11 14:07		240184	
Chlorobenzene	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Chloroethane	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Chloroform	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Chloromethane	2500	U	2500	230	500	NA	3/28/11 14:07		240184	
Cyclohexane	5000	U	5000	150	500	NA	3/28/11 14:07		240184	
Dibromochloromethane	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	3/28/11 14:07		240184	
Dichloromethane	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Ethylbenzene	2500	U	2500	210	500	NA	3/28/11 14:07		240184	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	3/28/11 14:07		240184	
Methyl Acetate	5000	U	5000	330	500	NA	3/28/11 14:07		240184	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1434
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-IW0002I-027.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Methylcyclohexane	5000	U	5000	150	500	NA	3/28/11 14:07		240184	
Styrene	2500	U	2500	180	500	NA	3/28/11 14:07		240184	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	3/28/11 14:07		240184	
Toluene	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Trichloroethene (TCE)	**200**	J	2500	150	500	NA	3/28/11 14:07		240184	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
Vinyl Chloride	**1100**	J	2500	150	500	NA	3/28/11 14:07		240184	
cis-1,2-Dichloroethene	**27000**		2500	150	500	NA	3/28/11 14:07		240184	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
m,p-Xylenes	2500	U	2500	410	500	NA	3/28/11 14:07		240184	
n-Butyl Acetate	2500	U	2500	150	500	NA	3/28/11 14:07		240184	
o-Xylene	2500	U	2500	200	500	NA	3/28/11 14:07		240184	
trans-1,2-Dichloroethene	**550**	J	2500	150	500	NA	3/28/11 14:07		240184	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	3/28/11 14:07		240184	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	3/28/11 14:07	
Dibromofluoromethane	105	89-119	3/28/11 14:07	
Toluene-d8	103	87-121	3/28/11 14:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1405
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-IW0002D-037.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	**190**	J	1300	100	250	NA	3/29/11 14:44		240517	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	3/29/11 14:44		240517	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	3/29/11 14:44		240517	
1,2-Dibromoethane	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	3/29/11 14:44		240517	
1,2-Dichloroethane	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
1,2-Dichloropropane	1300	U	1300	170	250	NA	3/29/11 14:44		240517	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	3/29/11 14:44		240517	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	3/29/11 14:44		240517	
n-Butanol	13000	U	13000	1700	250	NA	3/29/11 14:44		240517	
2-Butanone (MEK)	2500	U	2500	250	250	NA	3/29/11 14:44		240517	
2-Hexanone	2500	U	2500	100	250	NA	3/29/11 14:44		240517	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	3/29/11 14:44		240517	
Acetone	5000	U	5000	400	250	NA	3/29/11 14:44		240517	
Benzene	1300	U	1300	78	250	NA	3/29/11 14:44		240517	
Bromodichloromethane	1300	U	1300	110	250	NA	3/29/11 14:44		240517	
Bromoform	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Bromomethane	1300	U	1300	100	250	NA	3/29/11 14:44		240517	
Carbon Disulfide	2500	U	2500	88	250	NA	3/29/11 14:44		240517	
Carbon Tetrachloride	1300	U	1300	90	250	NA	3/29/11 14:44		240517	
Chlorobenzene	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Chloroethane	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Chloroform	**120**	J	1300	75	250	NA	3/29/11 14:44		240517	
Chloromethane	1300	U	1300	120	250	NA	3/29/11 14:44		240517	
Cyclohexane	2500	U	2500	75	250	NA	3/29/11 14:44		240517	
Dibromochloromethane	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	3/29/11 14:44		240517	
Dichloromethane	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Ethylbenzene	1300	U	1300	110	250	NA	3/29/11 14:44		240517	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	3/29/11 14:44		240517	
Methyl Acetate	2500	U	2500	170	250	NA	3/29/11 14:44		240517	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1405
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-IW0002D-037.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Methylcyclohexane	2500	U	2500	75	250	NA	3/29/11 14:44		240517	
Styrene	1300	U	1300	88	250	NA	3/29/11 14:44		240517	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	3/29/11 14:44		240517	
Toluene	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Trichloroethene (TCE)	**3100**		1300	75	250	NA	3/29/11 14:44		240517	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
Vinyl Chloride	**1300**	J	1300	75	250	NA	3/29/11 14:44		240517	
cis-1,2-Dichloroethene	**25000**		1300	75	250	NA	3/29/11 14:44		240517	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
m,p-Xylenes	1300	U	1300	210	250	NA	3/29/11 14:44		240517	
n-Butyl Acetate	1300	U	1300	75	250	NA	3/29/11 14:44		240517	
o-Xylene	1300	U	1300	100	250	NA	3/29/11 14:44		240517	
trans-1,2-Dichloroethene	**260**	J	1300	75	250	NA	3/29/11 14:44		240517	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/29/11 14:44		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	3/29/11 14:44	
Dibromofluoromethane	104	89-119	3/29/11 14:44	
Toluene-d8	103	87-121	3/29/11 14:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1501
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0001C-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	**26000**		1300	100	250	NA	3/29/11 15:11		240517	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	3/29/11 15:11		240517	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	3/29/11 15:11		240517	
1,2-Dibromoethane	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	3/29/11 15:11		240517	
1,2-Dichloroethane	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
1,2-Dichloropropane	1300	U	1300	170	250	NA	3/29/11 15:11		240517	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	3/29/11 15:11		240517	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	3/29/11 15:11		240517	
n-Butanol	13000	U	13000	1700	250	NA	3/29/11 15:11		240517	
2-Butanone (MEK)	2500	U	2500	250	250	NA	3/29/11 15:11		240517	
2-Hexanone	2500	U	2500	100	250	NA	3/29/11 15:11		240517	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	3/29/11 15:11		240517	
Acetone	**1800**	J	5000	400	250	NA	3/29/11 15:11		240517	
Benzene	1300	U	1300	78	250	NA	3/29/11 15:11		240517	
Bromodichloromethane	1300	U	1300	110	250	NA	3/29/11 15:11		240517	
Bromoform	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Bromomethane	1300	U	1300	100	250	NA	3/29/11 15:11		240517	
Carbon Disulfide	2500	U	2500	88	250	NA	3/29/11 15:11		240517	
Carbon Tetrachloride	1300	U	1300	90	250	NA	3/29/11 15:11		240517	
Chlorobenzene	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Chloroethane	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Chloroform	**150**	J	1300	75	250	NA	3/29/11 15:11		240517	
Chloromethane	1300	U	1300	120	250	NA	3/29/11 15:11		240517	
Cyclohexane	2500	U	2500	75	250	NA	3/29/11 15:11		240517	
Dibromochloromethane	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	3/29/11 15:11		240517	
Dichloromethane	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Ethylbenzene	1300	U	1300	110	250	NA	3/29/11 15:11		240517	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	3/29/11 15:11		240517	
Methyl Acetate	2500	U	2500	170	250	NA	3/29/11 15:11		240517	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1501
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0001C-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Methylcyclohexane	2500	U	2500	75	250	NA	3/29/11 15:11		240517	
Styrene	1300	U	1300	88	250	NA	3/29/11 15:11		240517	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	3/29/11 15:11		240517	
Toluene	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Trichloroethene (TCE)	**48000**		1300	75	250	NA	3/29/11 15:11		240517	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
Vinyl Chloride	**420**	J	1300	75	250	NA	3/29/11 15:11		240517	
cis-1,2-Dichloroethene	**28000**		1300	75	250	NA	3/29/11 15:11		240517	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
m,p-Xylenes	1300	U	1300	210	250	NA	3/29/11 15:11		240517	
n-Butyl Acetate	1300	U	1300	75	250	NA	3/29/11 15:11		240517	
o-Xylene	1300	U	1300	100	250	NA	3/29/11 15:11		240517	
trans-1,2-Dichloroethene	**240**	J	1300	75	250	NA	3/29/11 15:11		240517	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/29/11 15:11		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	3/29/11 15:11	
Dibromofluoromethane	103	89-119	3/29/11 15:11	
Toluene-d8	102	87-121	3/29/11 15:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1253
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0002C-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
1,1,2-Trichloro-1,2,2-trifluoroethane	1300	U	1300	100	250	NA	3/28/11 15:29		240184	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	3/28/11 15:29		240184	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	3/28/11 15:29		240184	
1,2-Dibromoethane	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	3/28/11 15:29		240184	
1,2-Dichloroethane	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
1,2-Dichloropropane	1300	U	1300	170	250	NA	3/28/11 15:29		240184	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	3/28/11 15:29		240184	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	3/28/11 15:29		240184	
n-Butanol	13000	U	13000	1700	250	NA	3/28/11 15:29		240184	
2-Butanone (MEK)	2500	U	2500	250	250	NA	3/28/11 15:29		240184	
2-Hexanone	2500	U	2500	100	250	NA	3/28/11 15:29		240184	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	3/28/11 15:29		240184	
Acetone	5000	U	5000	400	250	NA	3/28/11 15:29		240184	
Benzene	1300	U	1300	78	250	NA	3/28/11 15:29		240184	
Bromodichloromethane	1300	U	1300	110	250	NA	3/28/11 15:29		240184	
Bromoform	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Bromomethane	1300	U	1300	100	250	NA	3/28/11 15:29		240184	
Carbon Disulfide	2500	U	2500	88	250	NA	3/28/11 15:29		240184	
Carbon Tetrachloride	1300	U	1300	90	250	NA	3/28/11 15:29		240184	
Chlorobenzene	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Chloroethane	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Chloroform	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Chloromethane	1300	U	1300	120	250	NA	3/28/11 15:29		240184	
Cyclohexane	2500	U	2500	75	250	NA	3/28/11 15:29		240184	
Dibromochloromethane	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	3/28/11 15:29		240184	
Dichloromethane	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Ethylbenzene	1300	U	1300	110	250	NA	3/28/11 15:29		240184	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	3/28/11 15:29		240184	
Methyl Acetate	2500	U	2500	170	250	NA	3/28/11 15:29		240184	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1253
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0002C-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Methylcyclohexane	2500	U	2500	75	250	NA	3/28/11 15:29		240184	
Styrene	1300	U	1300	88	250	NA	3/28/11 15:29		240184	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	3/28/11 15:29		240184	
Toluene	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Trichloroethene (TCE)	**2900**		1300	75	250	NA	3/28/11 15:29		240184	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
Vinyl Chloride	**2500**		1300	75	250	NA	3/28/11 15:29		240184	
cis-1,2-Dichloroethene	**66000**	D	2500	150	500	NA	3/29/11 15:38		240517	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
m,p-Xylenes	1300	U	1300	210	250	NA	3/28/11 15:29		240184	
n-Butyl Acetate	1300	U	1300	75	250	NA	3/28/11 15:29		240184	
o-Xylene	1300	U	1300	100	250	NA	3/28/11 15:29		240184	
trans-1,2-Dichloroethene	**430**	J	1300	75	250	NA	3/28/11 15:29		240184	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	3/28/11 15:29		240184	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	3/28/11 15:29	
Dibromofluoromethane	106	89-119	3/28/11 15:29	
Toluene-d8	107	87-121	3/28/11 15:29	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1621
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0003C-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	30	100	NA	3/29/11 16:06		240517	
1,1,2,2-Tetrachloroethane	500	U	500	30	100	NA	3/29/11 16:06		240517	
1,1,2-Trichloroethane	500	U	500	30	100	NA	3/29/11 16:06		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	40	100	NA	3/29/11 16:06		240517	
1,1-Dichloroethane (1,1-DCA)	500	U	500	30	100	NA	3/29/11 16:06		240517	
1,1-Dichloroethene (1,1-DCE)	500	U	500	37	100	NA	3/29/11 16:06		240517	
1,2,4-Trichlorobenzene	500	U	500	30	100	NA	3/29/11 16:06		240517	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	100	NA	3/29/11 16:06		240517	
1,2-Dibromoethane	500	U	500	30	100	NA	3/29/11 16:06		240517	
1,2-Dichlorobenzene	500	U	500	40	100	NA	3/29/11 16:06		240517	
1,2-Dichloroethane	500	U	500	30	100	NA	3/29/11 16:06		240517	
1,2-Dichloropropane	500	U	500	66	100	NA	3/29/11 16:06		240517	
1,3-Dichlorobenzene	500	U	500	36	100	NA	3/29/11 16:06		240517	
1,4-Dichlorobenzene	500	U	500	34	100	NA	3/29/11 16:06		240517	
n-Butanol	5000	U	5000	670	100	NA	3/29/11 16:06		240517	
2-Butanone (MEK)	1000	U	1000	100	100	NA	3/29/11 16:06		240517	
2-Hexanone	1000	U	1000	40	100	NA	3/29/11 16:06		240517	
4-Methyl-2-pentanone	1000	U	1000	34	100	NA	3/29/11 16:06		240517	
Acetone	2000	U	2000	160	100	NA	3/29/11 16:06		240517	
Benzene	500	U	500	31	100	NA	3/29/11 16:06		240517	
Bromodichloromethane	500	U	500	41	100	NA	3/29/11 16:06		240517	
Bromoform	500	U	500	30	100	NA	3/29/11 16:06		240517	
Bromomethane	500	U	500	40	100	NA	3/29/11 16:06		240517	
Carbon Disulfide	1000	U	1000	35	100	NA	3/29/11 16:06		240517	
Carbon Tetrachloride	500	U	500	36	100	NA	3/29/11 16:06		240517	
Chlorobenzene	500	U	500	30	100	NA	3/29/11 16:06		240517	
Chloroethane	500	U	500	30	100	NA	3/29/11 16:06		240517	
Chloroform	46	J	500	30	100	NA	3/29/11 16:06		240517	
Chloromethane	500	U	500	46	100	NA	3/29/11 16:06		240517	
Cyclohexane	1000	U	1000	30	100	NA	3/29/11 16:06		240517	
Dibromochloromethane	500	U	500	30	100	NA	3/29/11 16:06		240517	
Dichlorodifluoromethane (CFC 12)	500	U	500	73	100	NA	3/29/11 16:06		240517	
Dichloromethane	500	U	500	30	100	NA	3/29/11 16:06		240517	
Ethylbenzene	500	U	500	42	100	NA	3/29/11 16:06		240517	
Isopropylbenzene (Cumene)	500	U	500	34	100	NA	3/29/11 16:06		240517	
Methyl Acetate	1000	U	1000	66	100	NA	3/29/11 16:06		240517	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1621
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0003C-038.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	30	100	NA	3/29/11 16:06		240517	
Methylcyclohexane	1000	U	1000	30	100	NA	3/29/11 16:06		240517	
Styrene	500	U	500	35	100	NA	3/29/11 16:06		240517	
Tetrachloroethene (PCE)	500	U	500	42	100	NA	3/29/11 16:06		240517	
Toluene	500	U	500	30	100	NA	3/29/11 16:06		240517	
Trichloroethene (TCE)	**65**	J	500	30	100	NA	3/29/11 16:06		240517	
Trichlorofluoromethane (CFC 11)	500	U	500	30	100	NA	3/29/11 16:06		240517	
Vinyl Chloride	**3200**		500	30	100	NA	3/29/11 16:06		240517	
cis-1,2-Dichloroethene	**12000**		500	30	100	NA	3/29/11 16:06		240517	
cis-1,3-Dichloropropene	500	U	500	30	100	NA	3/29/11 16:06		240517	
m,p-Xylenes	500	U	500	81	100	NA	3/29/11 16:06		240517	
n-Butyl Acetate	500	U	500	30	100	NA	3/29/11 16:06		240517	
o-Xylene	500	U	500	40	100	NA	3/29/11 16:06		240517	
trans-1,2-Dichloroethene	**110**	J	500	30	100	NA	3/29/11 16:06		240517	
trans-1,3-Dichloropropene	500	U	500	30	100	NA	3/29/11 16:06		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	3/29/11 16:06	
Dibromofluoromethane	104	89-119	3/29/11 16:06	
Toluene-d8	102	87-121	3/29/11 16:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1121
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-RW0008-052.0-20110322		
Lab Code:	R1101575-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.1**		mg/L	1.0	10	NA	3/29/11 20:31	
Carbon, Total Organic (TOC), Average	9060	**3.6**		mg/L	1.0	1	NA	3/25/11 23:13	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	4/7/11 14:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1121
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-RW0008-052.0-20110322	**Units:**	µg/L
Lab Code:	R1101575-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
1,1,2,2-Tetrachloroethane	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
1,1,2-Trichloroethane	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	**190**		50	4.0	10	NA	3/29/11 16:33		240517	
1,1-Dichloroethane (1,1-DCA)	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
1,1-Dichloroethene (1,1-DCE)	50	U	50	3.7	10	NA	3/29/11 16:33		240517	
1,2,4-Trichlorobenzene	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	4.3	10	NA	3/29/11 16:33		240517	
1,2-Dibromoethane	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
1,2-Dichlorobenzene	50	U	50	4.0	10	NA	3/29/11 16:33		240517	
1,2-Dichloroethane	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
1,2-Dichloropropane	50	U	50	6.7	10	NA	3/29/11 16:33		240517	
1,3-Dichlorobenzene	50	U	50	3.6	10	NA	3/29/11 16:33		240517	
1,4-Dichlorobenzene	50	U	50	3.5	10	NA	3/29/11 16:33		240517	
n-Butanol	500	U	500	67	10	NA	3/29/11 16:33		240517	
2-Butanone (MEK)	100	U	100	10	10	NA	3/29/11 16:33		240517	
2-Hexanone	100	U	100	4.0	10	NA	3/29/11 16:33		240517	
4-Methyl-2-pentanone	100	U	100	3.5	10	NA	3/29/11 16:33		240517	
Acetone	200	U	200	16	10	NA	3/29/11 16:33		240517	
Benzene	50	U	50	3.1	10	NA	3/29/11 16:33		240517	
Bromodichloromethane	50	U	50	4.1	10	NA	3/29/11 16:33		240517	
Bromoform	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Bromomethane	50	U	50	4.0	10	NA	3/29/11 16:33		240517	
Carbon Disulfide	100	U	100	3.5	10	NA	3/29/11 16:33		240517	
Carbon Tetrachloride	50	U	50	3.6	10	NA	3/29/11 16:33		240517	
Chlorobenzene	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Chloroethane	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Chloroform	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Chloromethane	50	U	50	4.7	10	NA	3/29/11 16:33		240517	
Cyclohexane	100	U	100	3.0	10	NA	3/29/11 16:33		240517	
Dibromochloromethane	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Dichlorodifluoromethane (CFC 12)	50	U	50	7.3	10	NA	3/29/11 16:33		240517	
Dichloromethane	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Ethylbenzene	50	U	50	4.2	10	NA	3/29/11 16:33		240517	
Isopropylbenzene (Cumene)	50	U	50	3.5	10	NA	3/29/11 16:33		240517	
Methyl Acetate	100	U	100	6.7	10	NA	3/29/11 16:33		240517	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1121
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-RW0008-052.0-20110322	**Units:**	µg/L
Lab Code:	R1101575-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Methylcyclohexane	100	U	100	3.0	10	NA	3/29/11 16:33		240517	
Styrene	50	U	50	3.5	10	NA	3/29/11 16:33		240517	
Tetrachloroethene (PCE)	50	U	50	4.2	10	NA	3/29/11 16:33		240517	
Toluene	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Trichloroethene (TCE)	**1300**		50	3.0	10	NA	3/29/11 16:33		240517	
Trichlorofluoromethane (CFC 11)	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
Vinyl Chloride	**34**	J	50	3.0	10	NA	3/29/11 16:33		240517	
cis-1,2-Dichloroethene	**450**		50	3.0	10	NA	3/29/11 16:33		240517	
cis-1,3-Dichloropropene	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
m,p-Xylenes	50	U	50	8.2	10	NA	3/29/11 16:33		240517	
n-Butyl Acetate	50	U	50	3.0	10	NA	3/29/11 16:33		240517	
o-Xylene	50	U	50	4.0	10	NA	3/29/11 16:33		240517	
trans-1,2-Dichloroethene	**3.0**	J	50	3.0	10	NA	3/29/11 16:33		240517	
trans-1,3-Dichloropropene	50	U	50	3.0	10	NA	3/29/11 16:33		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	3/29/11 16:33	
Dibromofluoromethane	105	89-119	3/29/11 16:33	
Toluene-d8	103	87-121	3/29/11 16:33	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1121
Sample Matrix:	Water	**Date Received:**	3/24/11
		Date Analyzed:	3/24/11 19:53
Sample Name:	LC34-RW0008-052.0-20110322	**Units:**	mg/L
Lab Code:	R1101575-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	240058
Data File Name:	J:\ACQUDATA\HPLC05\DATA\032411\X0005584.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1330
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-IW0002D1-052.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
1,1,2,2-Tetrachloroethane	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
1,1,2-Trichloroethane	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.9	J	13	1.0	2.5	NA	3/29/11 17:01		240517	
1,1-Dichloroethane (1,1-DCA)	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
1,1-Dichloroethene (1,1-DCE)	13	U	13	0.93	2.5	NA	3/29/11 17:01		240517	
1,2,4-Trichlorobenzene	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.1	2.5	NA	3/29/11 17:01		240517	
1,2-Dibromoethane	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
1,2-Dichlorobenzene	13	U	13	1.0	2.5	NA	3/29/11 17:01		240517	
1,2-Dichloroethane	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
1,2-Dichloropropane	13	U	13	1.7	2.5	NA	3/29/11 17:01		240517	
1,3-Dichlorobenzene	13	U	13	0.90	2.5	NA	3/29/11 17:01		240517	
1,4-Dichlorobenzene	13	U	13	0.86	2.5	NA	3/29/11 17:01		240517	
n-Butanol	130	U	130	17	2.5	NA	3/29/11 17:01		240517	
2-Butanone (MEK)	25	U	25	2.5	2.5	NA	3/29/11 17:01		240517	
2-Hexanone	25	U	25	1.0	2.5	NA	3/29/11 17:01		240517	
4-Methyl-2-pentanone	25	U	25	0.86	2.5	NA	3/29/11 17:01		240517	
Acetone	50	U	50	4.0	2.5	NA	3/29/11 17:01		240517	
Benzene	13	U	13	0.78	2.5	NA	3/29/11 17:01		240517	
Bromodichloromethane	13	U	13	1.1	2.5	NA	3/29/11 17:01		240517	
Bromoform	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Bromomethane	13	U	13	1.0	2.5	NA	3/29/11 17:01		240517	
Carbon Disulfide	25	U	25	0.88	2.5	NA	3/29/11 17:01		240517	
Carbon Tetrachloride	13	U	13	0.90	2.5	NA	3/29/11 17:01		240517	
Chlorobenzene	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Chloroethane	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Chloroform	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Chloromethane	13	U	13	1.2	2.5	NA	3/29/11 17:01		240517	
Cyclohexane	25	U	25	0.75	2.5	NA	3/29/11 17:01		240517	
Dibromochloromethane	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Dichlorodifluoromethane (CFC 12)	13	U	13	1.9	2.5	NA	3/29/11 17:01		240517	
Dichloromethane	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Ethylbenzene	13	U	13	1.1	2.5	NA	3/29/11 17:01		240517	
Isopropylbenzene (Cumene)	13	U	13	0.86	2.5	NA	3/29/11 17:01		240517	
Methyl Acetate	25	U	25	1.7	2.5	NA	3/29/11 17:01		240517	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1330
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-IW0002D1-052.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Methylcyclohexane	25	U	25	0.75	2.5	NA	3/29/11 17:01		240517	
Styrene	13	U	13	0.88	2.5	NA	3/29/11 17:01		240517	
Tetrachloroethene (PCE)	13	U	13	1.1	2.5	NA	3/29/11 17:01		240517	
Toluene	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Trichloroethene (TCE)	**260**		13	0.75	2.5	NA	3/29/11 17:01		240517	
Trichlorofluoromethane (CFC 11)	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
Vinyl Chloride	**3.3**	J	13	0.75	2.5	NA	3/29/11 17:01		240517	
cis-1,2-Dichloroethene	**380**		13	0.75	2.5	NA	3/29/11 17:01		240517	
cis-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
m,p-Xylenes	13	U	13	2.1	2.5	NA	3/29/11 17:01		240517	
n-Butyl Acetate	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	
o-Xylene	13	U	13	1.0	2.5	NA	3/29/11 17:01		240517	
trans-1,2-Dichloroethene	**2.5**	J	13	0.75	2.5	NA	3/29/11 17:01		240517	
trans-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	3/29/11 17:01		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	3/29/11 17:01	
Dibromofluoromethane	105	89-119	3/29/11 17:01	
Toluene-d8	104	87-121	3/29/11 17:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1525
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0001E-052.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
1,1,2,2-Tetrachloroethane	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
1,1,2-Trichloroethane	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	25	U	25	2.0	5	NA	3/29/11 17:28		240517	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
1,1-Dichloroethene (1,1-DCE)	25	U	25	1.9	5	NA	3/29/11 17:28		240517	
1,2,4-Trichlorobenzene	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	2.2	5	NA	3/29/11 17:28		240517	
1,2-Dibromoethane	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
1,2-Dichlorobenzene	25	U	25	2.0	5	NA	3/29/11 17:28		240517	
1,2-Dichloroethane	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
1,2-Dichloropropane	25	U	25	3.4	5	NA	3/29/11 17:28		240517	
1,3-Dichlorobenzene	25	U	25	1.8	5	NA	3/29/11 17:28		240517	
1,4-Dichlorobenzene	25	U	25	1.8	5	NA	3/29/11 17:28		240517	
n-Butanol	250	U	250	34	5	NA	3/29/11 17:28		240517	
2-Butanone (MEK)	50	U	50	5.0	5	NA	3/29/11 17:28		240517	
2-Hexanone	50	U	50	2.0	5	NA	3/29/11 17:28		240517	
4-Methyl-2-pentanone	50	U	50	1.8	5	NA	3/29/11 17:28		240517	
Acetone	100	U	100	8.0	5	NA	3/29/11 17:28		240517	
Benzene	25	U	25	1.6	5	NA	3/29/11 17:28		240517	
Bromodichloromethane	25	U	25	2.1	5	NA	3/29/11 17:28		240517	
Bromoform	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Bromomethane	25	U	25	2.0	5	NA	3/29/11 17:28		240517	
Carbon Disulfide	50	U	50	1.8	5	NA	3/29/11 17:28		240517	
Carbon Tetrachloride	25	U	25	1.8	5	NA	3/29/11 17:28		240517	
Chlorobenzene	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Chloroethane	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Chloroform	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Chloromethane	25	U	25	2.4	5	NA	3/29/11 17:28		240517	
Cyclohexane	50	U	50	1.5	5	NA	3/29/11 17:28		240517	
Dibromochloromethane	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Dichlorodifluoromethane (CFC 12)	25	U	25	3.7	5	NA	3/29/11 17:28		240517	
Dichloromethane	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Ethylbenzene	25	U	25	2.1	5	NA	3/29/11 17:28		240517	
Isopropylbenzene (Cumene)	25	U	25	1.8	5	NA	3/29/11 17:28		240517	
Methyl Acetate	50	U	50	3.4	5	NA	3/29/11 17:28		240517	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1525
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0001E-052.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Methylcyclohexane	50	U	50	1.5	5	NA	3/29/11 17:28		240517	
Styrene	25	U	25	1.8	5	NA	3/29/11 17:28		240517	
Tetrachloroethene (PCE)	25	U	25	2.1	5	NA	3/29/11 17:28		240517	
Toluene	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Trichloroethene (TCE)	590		25	1.5	5	NA	3/29/11 17:28		240517	
Trichlorofluoromethane (CFC 11)	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
Vinyl Chloride	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
cis-1,2-Dichloroethene	79		25	1.5	5	NA	3/29/11 17:28		240517	
cis-1,3-Dichloropropene	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
m,p-Xylenes	25	U	25	4.1	5	NA	3/29/11 17:28		240517	
n-Butyl Acetate	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
o-Xylene	25	U	25	2.0	5	NA	3/29/11 17:28		240517	
trans-1,2-Dichloroethene	25	U	25	1.5	5	NA	3/29/11 17:28		240517	
trans-1,3-Dichloropropene	25	U	25	1.5	5	NA	3/29/11 17:28		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	3/29/11 17:28	
Dibromofluoromethane	100	89-119	3/29/11 17:28	
Toluene-d8	101	87-121	3/29/11 17:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1552
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0003E-052.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	3/28/11 17:45		240184	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	3/28/11 17:45		240184	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	3/28/11 17:45		240184	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	3/28/11 17:45		240184	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	3/28/11 17:45		240184	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	3/28/11 17:45		240184	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	3/28/11 17:45		240184	
n-Butanol	50	U	50	6.7	1	NA	3/28/11 17:45		240184	
2-Butanone (MEK)	10	U	10	1.0	1	NA	3/28/11 17:45		240184	
2-Hexanone	10	U	10	0.40	1	NA	3/28/11 17:45		240184	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	3/28/11 17:45		240184	
Acetone	20	U	20	1.6	1	NA	3/28/11 17:45		240184	
Benzene	5.0	U	5.0	0.31	1	NA	3/28/11 17:45		240184	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	3/28/11 17:45		240184	
Bromoform	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Bromomethane	5.0	U	5.0	0.40	1	NA	3/28/11 17:45		240184	
Carbon Disulfide	10	U	10	0.35	1	NA	3/28/11 17:45		240184	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	3/28/11 17:45		240184	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Chloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Chloroform	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Chloromethane	5.0	U	5.0	0.46	1	NA	3/28/11 17:45		240184	
Cyclohexane	10	U	10	0.30	1	NA	3/28/11 17:45		240184	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	3/28/11 17:45		240184	
Dichloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	3/28/11 17:45		240184	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	3/28/11 17:45		240184	
Methyl Acetate	10	U	10	0.66	1	NA	3/28/11 17:45		240184	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11 1552
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-BW0003E-052.5-20110322	**Units:**	µg/L
Lab Code:	R1101575-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Methylcyclohexane	10	U	10	0.30	1	NA	3/28/11 17:45		240184	
Styrene	5.0	U	5.0	0.35	1	NA	3/28/11 17:45		240184	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	3/28/11 17:45		240184	
Toluene	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
cis-1,2-Dichloroethene	**0.62**	J	5.0	0.30	1	NA	3/28/11 17:45		240184	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	3/28/11 17:45		240184	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
o-Xylene	5.0	U	5.0	0.40	1	NA	3/28/11 17:45		240184	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 17:45		240184	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	3/28/11 17:45	
Dibromofluoromethane	107	89-119	3/28/11 17:45	
Toluene-d8	106	87-121	3/28/11 17:45	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-FD-20110322-01	**Units:**	µg/L
Lab Code:	R1101575-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	3/28/11 18:13		240184	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	3/28/11 18:13		240184	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	3/28/11 18:13		240184	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	3/28/11 18:13		240184	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	3/28/11 18:13		240184	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	3/28/11 18:13		240184	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	3/28/11 18:13		240184	
n-Butanol	50	U	50	6.7	1	NA	3/28/11 18:13		240184	
2-Butanone (MEK)	10	U	10	1.0	1	NA	3/28/11 18:13		240184	
2-Hexanone	10	U	10	0.40	1	NA	3/28/11 18:13		240184	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	3/28/11 18:13		240184	
Acetone	20	U	20	1.6	1	NA	3/28/11 18:13		240184	
Benzene	5.0	U	5.0	0.31	1	NA	3/28/11 18:13		240184	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	3/28/11 18:13		240184	
Bromoform	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Bromomethane	5.0	U	5.0	0.40	1	NA	3/28/11 18:13		240184	
Carbon Disulfide	10	U	10	0.35	1	NA	3/28/11 18:13		240184	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	3/28/11 18:13		240184	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Chloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Chloroform	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Chloromethane	5.0	U	5.0	0.46	1	NA	3/28/11 18:13		240184	
Cyclohexane	10	U	10	0.30	1	NA	3/28/11 18:13		240184	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	3/28/11 18:13		240184	
Dichloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	3/28/11 18:13		240184	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	3/28/11 18:13		240184	
Methyl Acetate	10	U	10	0.66	1	NA	3/28/11 18:13		240184	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-FD-20110322-01	**Units:**	µg/L
Lab Code:	R1101575-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Methylcyclohexane	10	U	10	0.30	1	NA	3/28/11 18:13		240184	
Styrene	5.0	U	5.0	0.35	1	NA	3/28/11 18:13		240184	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	3/28/11 18:13		240184	
Toluene	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
cis-1,2-Dichloroethene	1.5	J	5.0	0.30	1	NA	3/28/11 18:13		240184	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	3/28/11 18:13		240184	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
o-Xylene	5.0	U	5.0	0.40	1	NA	3/28/11 18:13		240184	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 18:13		240184	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	3/28/11 18:13	
Dibromofluoromethane	102	89-119	3/28/11 18:13	
Toluene-d8	100	87-121	3/28/11 18:13	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-TB-20110322-01	**Units:**	µg/L
Lab Code:	R1101575-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	3/28/11 18:40		240184	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	3/28/11 18:40		240184	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	3/28/11 18:40		240184	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	3/28/11 18:40		240184	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	3/28/11 18:40		240184	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	3/28/11 18:40		240184	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	3/28/11 18:40		240184	
n-Butanol	50	U	50	6.7	1	NA	3/28/11 18:40		240184	
2-Butanone (MEK)	10	U	10	1.0	1	NA	3/28/11 18:40		240184	
2-Hexanone	10	U	10	0.40	1	NA	3/28/11 18:40		240184	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	3/28/11 18:40		240184	
Acetone	20	U	20	1.6	1	NA	3/28/11 18:40		240184	
Benzene	5.0	U	5.0	0.31	1	NA	3/28/11 18:40		240184	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	3/28/11 18:40		240184	
Bromoform	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Bromomethane	5.0	U	5.0	0.40	1	NA	3/28/11 18:40		240184	
Carbon Disulfide	10	U	10	0.35	1	NA	3/28/11 18:40		240184	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	3/28/11 18:40		240184	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Chloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Chloroform	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Chloromethane	5.0	U	5.0	0.46	1	NA	3/28/11 18:40		240184	
Cyclohexane	10	U	10	0.30	1	NA	3/28/11 18:40		240184	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	3/28/11 18:40		240184	
Dichloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	3/28/11 18:40		240184	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	3/28/11 18:40		240184	
Methyl Acetate	10	U	10	0.66	1	NA	3/28/11 18:40		240184	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/22/11
Sample Matrix:	Water	**Date Received:**	3/24/11
Sample Name:	LC34-TB-20110322-01	**Units:**	µg/L
Lab Code:	R1101575-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Methylcyclohexane	10	U	10	0.30	1	NA	3/28/11 18:40		240184	
Styrene	5.0	U	5.0	0.35	1	NA	3/28/11 18:40		240184	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	3/28/11 18:40		240184	
Toluene	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	3/28/11 18:40		240184	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
o-Xylene	5.0	U	5.0	0.40	1	NA	3/28/11 18:40		240184	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 18:40		240184	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	3/28/11 18:40	
Dibromofluoromethane	106	89-119	3/28/11 18:40	
Toluene-d8	105	87-121	3/28/11 18:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 0926
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-RW0007-038.5-20110328		
Lab Code:	R1101575-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**227**		mg/L	2.0	1	NA	4/7/11 11:10	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	3/30/11 15:37	
Carbon, Total Organic (TOC), Average	9060	**4.9**		mg/L	1.0	1	NA	3/31/11 17:20	
Chloride	300.0	**664**		mg/L	40	200	NA	3/30/11 23:48	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	4/7/11 14:31	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	3/30/11 15:37	*
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	3/31/11 13:12	*
Sulfate	300.0	**59.0**		mg/L	2.0	10	NA	3/30/11 15:37	
Sulfide, Total	SM 4500-S2- F	**1.1**		mg/L	1.0	1	NA	4/1/11 13:20	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 0926
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-RW0007-038.5-20110328	**Units:**	µg/L
Lab Code:	R1101575-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240878

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
1,1,2,2-Tetrachloroethane	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
1,1,2-Trichloroethane	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
1,1,2-Trichloro-1,2,2-trifluoroethane	**8200**		1000	80	200	NA	3/31/11 21:56		240878	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	200	NA	3/31/11 21:56		240878	
1,2,4-Trichlorobenzene	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	200	NA	3/31/11 21:56		240878	
1,2-Dibromoethane	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
1,2-Dichlorobenzene	1000	U	1000	80	200	NA	3/31/11 21:56		240878	
1,2-Dichloroethane	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
1,2-Dichloropropane	1000	U	1000	140	200	NA	3/31/11 21:56		240878	
1,3-Dichlorobenzene	1000	U	1000	72	200	NA	3/31/11 21:56		240878	
1,4-Dichlorobenzene	1000	U	1000	68	200	NA	3/31/11 21:56		240878	
n-Butanol	10000	U	10000	1400	200	NA	3/31/11 21:56		240878	
2-Butanone (MEK)	2000	U	2000	200	200	NA	3/31/11 21:56		240878	
2-Hexanone	2000	U	2000	80	200	NA	3/31/11 21:56		240878	
4-Methyl-2-pentanone	2000	U	2000	68	200	NA	3/31/11 21:56		240878	
Acetone	**340**	J	4000	320	200	NA	3/31/11 21:56		240878	
Benzene	1000	U	1000	62	200	NA	3/31/11 21:56		240878	
Bromodichloromethane	1000	U	1000	82	200	NA	3/31/11 21:56		240878	
Bromoform	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
Bromomethane	1000	U	1000	80	200	NA	3/31/11 21:56		240878	
Carbon Disulfide	2000	U	2000	70	200	NA	3/31/11 21:56		240878	
Carbon Tetrachloride	1000	U	1000	72	200	NA	3/31/11 21:56		240878	
Chlorobenzene	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
Chloroethane	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
Chloroform	**220**	J	1000	60	200	NA	3/31/11 21:56		240878	
Chloromethane	1000	U	1000	92	200	NA	3/31/11 21:56		240878	
Cyclohexane	2000	U	2000	60	200	NA	3/31/11 21:56		240878	
Dibromochloromethane	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	200	NA	3/31/11 21:56		240878	
Dichloromethane	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
Ethylbenzene	1000	U	1000	84	200	NA	3/31/11 21:56		240878	
Isopropylbenzene (Cumene)	1000	U	1000	68	200	NA	3/31/11 21:56		240878	
Methyl Acetate	2000	U	2000	140	200	NA	3/31/11 21:56		240878	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 0926
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-RW0007-038.5-20110328	**Units:**	µg/L
Lab Code:	R1101575-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240878

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
Methylcyclohexane	2000	U	2000	60	200	NA	3/31/11 21:56		240878	
Styrene	1000	U	1000	70	200	NA	3/31/11 21:56		240878	
Tetrachloroethene (PCE)	1000	U	1000	84	200	NA	3/31/11 21:56		240878	
Toluene	**60**	J	1000	60	200	NA	3/31/11 21:56		240878	
Trichloroethene (TCE)	**17000**		1000	60	200	NA	3/31/11 21:56		240878	
Trichlorofluoromethane (CFC 11)	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
Vinyl Chloride	**740**	J	1000	60	200	NA	3/31/11 21:56		240878	
cis-1,2-Dichloroethene	**31000**		1000	60	200	NA	3/31/11 21:56		240878	
cis-1,3-Dichloropropene	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
m,p-Xylenes	1000	U	1000	170	200	NA	3/31/11 21:56		240878	
n-Butyl Acetate	1000	U	1000	60	200	NA	3/31/11 21:56		240878	
o-Xylene	1000	U	1000	80	200	NA	3/31/11 21:56		240878	
trans-1,2-Dichloroethene	**200**	J	1000	60	200	NA	3/31/11 21:56		240878	
trans-1,3-Dichloropropene	1000	U	1000	60	200	NA	3/31/11 21:56		240878	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	3/31/11 21:56	
Dibromofluoromethane	104	89-119	3/31/11 21:56	
Toluene-d8	103	87-121	3/31/11 21:56	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 0926
Sample Matrix:	Water	**Date Received:**	3/30/11
		Date Analyzed:	4/7/11 11:04
Sample Name:	LC34-RW0007-038.5-20110328	**Units:**	µg/L
Lab Code:	R1101575-013	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	241604
Data File Name:	star155.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**80**		1.0	
74-85-1	Ethene	**8.6**		1.0	
74-82-8	Methane	**40**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 0926
Sample Matrix:	Water	**Date Received:**	3/30/11
		Date Analyzed:	4/7/11 14:10
Sample Name:	LC34-RW0007-038.5-20110328	**Units:**	mg/L
Lab Code:	R1101575-013	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	240805
Data File Name:	J:\ACQUDATA\HPLC05\DATA\040711\X0005647.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1213
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-IW0002I-027.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240878

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	15	50	NA	3/31/11 22:27		240878	
1,1,2,2-Tetrachloroethane	250	U	250	15	50	NA	3/31/11 22:27		240878	
1,1,2-Trichloroethane	250	U	250	15	50	NA	3/31/11 22:27		240878	
1,1,2-Trichloro-1,2,2-trifluoroethane	**61000**	D	5000	400	1000	NA	4/3/11 23:44		241118	
1,1-Dichloroethane (1,1-DCA)	250	U	250	15	50	NA	3/31/11 22:27		240878	
1,1-Dichloroethene (1,1-DCE)	250	U	250	19	50	NA	3/31/11 22:27		240878	
1,2,4-Trichlorobenzene	250	U	250	15	50	NA	3/31/11 22:27		240878	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	22	50	NA	3/31/11 22:27		240878	
1,2-Dibromoethane	250	U	250	15	50	NA	3/31/11 22:27		240878	
1,2-Dichlorobenzene	250	U	250	20	50	NA	3/31/11 22:27		240878	
1,2-Dichloroethane	250	U	250	15	50	NA	3/31/11 22:27		240878	
1,2-Dichloropropane	250	U	250	33	50	NA	3/31/11 22:27		240878	
1,3-Dichlorobenzene	250	U	250	18	50	NA	3/31/11 22:27		240878	
1,4-Dichlorobenzene	250	U	250	17	50	NA	3/31/11 22:27		240878	
n-Butanol	2500	U	2500	340	50	NA	3/31/11 22:27		240878	
2-Butanone (MEK)	500	U	500	50	50	NA	3/31/11 22:27		240878	
2-Hexanone	500	U	500	20	50	NA	3/31/11 22:27		240878	
4-Methyl-2-pentanone	500	U	500	17	50	NA	3/31/11 22:27		240878	
Acetone	1000	U	1000	80	50	NA	3/31/11 22:27		240878	
Benzene	250	U	250	16	50	NA	3/31/11 22:27		240878	
Bromodichloromethane	250	U	250	21	50	NA	3/31/11 22:27		240878	
Bromoform	250	U	250	15	50	NA	3/31/11 22:27		240878	
Bromomethane	250	U	250	20	50	NA	3/31/11 22:27		240878	
Carbon Disulfide	500	U	500	18	50	NA	3/31/11 22:27		240878	
Carbon Tetrachloride	250	U	250	18	50	NA	3/31/11 22:27		240878	
Chlorobenzene	250	U	250	15	50	NA	3/31/11 22:27		240878	
Chloroethane	250	U	250	15	50	NA	3/31/11 22:27		240878	
Chloroform	250	U	250	15	50	NA	3/31/11 22:27		240878	
Chloromethane	250	U	250	23	50	NA	3/31/11 22:27		240878	
Cyclohexane	500	U	500	15	50	NA	3/31/11 22:27		240878	
Dibromochloromethane	250	U	250	15	50	NA	3/31/11 22:27		240878	
Dichlorodifluoromethane (CFC 12)	250	U	250	37	50	NA	3/31/11 22:27		240878	
Dichloromethane	250	U	250	15	50	NA	3/31/11 22:27		240878	
Ethylbenzene	250	U	250	21	50	NA	3/31/11 22:27		240878	
Isopropylbenzene (Cumene)	250	U	250	17	50	NA	3/31/11 22:27		240878	
Methyl Acetate	500	U	500	33	50	NA	3/31/11 22:27		240878	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1213
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-IW0002I-027.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240878

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	15	50	NA	3/31/11 22:27		240878	
Methylcyclohexane	500	U	500	15	50	NA	3/31/11 22:27		240878	
Styrene	250	U	250	18	50	NA	3/31/11 22:27		240878	
Tetrachloroethene (PCE)	250	U	250	21	50	NA	3/31/11 22:27		240878	
Toluene	250	U	250	15	50	NA	3/31/11 22:27		240878	
Trichloroethene (TCE)	**110**	J	250	15	50	NA	3/31/11 22:27		240878	
Trichlorofluoromethane (CFC 11)	250	U	250	15	50	NA	3/31/11 22:27		240878	
Vinyl Chloride	**980**		250	15	50	NA	3/31/11 22:27		240878	
cis-1,2-Dichloroethene	**23000**	D	5000	300	1000	NA	4/3/11 23:44		241118	
cis-1,3-Dichloropropene	250	U	250	15	50	NA	3/31/11 22:27		240878	
m,p-Xylenes	250	U	250	41	50	NA	3/31/11 22:27		240878	
n-Butyl Acetate	250	U	250	15	50	NA	3/31/11 22:27		240878	
o-Xylene	250	U	250	20	50	NA	3/31/11 22:27		240878	
trans-1,2-Dichloroethene	**500**		250	15	50	NA	3/31/11 22:27		240878	
trans-1,3-Dichloropropene	250	U	250	15	50	NA	3/31/11 22:27		240878	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	3/31/11 22:27	
Dibromofluoromethane	104	89-119	3/31/11 22:27	
Toluene-d8	104	87-121	3/31/11 22:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1122
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-IW0002D-037.5-20110328	**Units:**	µg/L
Lab Code:	R1101575-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
1,1,2,2-Tetrachloroethane	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
1,1,2-Trichloroethane	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
1,1,2-Trichloro-1,2,2-trifluoroethane	**2000**		1000	80	200	NA	4/1/11 17:58		241040	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	200	NA	4/1/11 17:58		241040	
1,2,4-Trichlorobenzene	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	200	NA	4/1/11 17:58		241040	
1,2-Dibromoethane	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
1,2-Dichlorobenzene	1000	U	1000	80	200	NA	4/1/11 17:58		241040	
1,2-Dichloroethane	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
1,2-Dichloropropane	1000	U	1000	140	200	NA	4/1/11 17:58		241040	
1,3-Dichlorobenzene	1000	U	1000	72	200	NA	4/1/11 17:58		241040	
1,4-Dichlorobenzene	1000	U	1000	68	200	NA	4/1/11 17:58		241040	
n-Butanol	10000	U	10000	1400	200	NA	4/1/11 17:58		241040	
2-Butanone (MEK)	2000	U	2000	200	200	NA	4/1/11 17:58		241040	
2-Hexanone	2000	U	2000	80	200	NA	4/1/11 17:58		241040	
4-Methyl-2-pentanone	2000	U	2000	68	200	NA	4/1/11 17:58		241040	
Acetone	4000	U	4000	320	200	NA	4/1/11 17:58		241040	
Benzene	1000	U	1000	62	200	NA	4/1/11 17:58		241040	
Bromodichloromethane	1000	U	1000	82	200	NA	4/1/11 17:58		241040	
Bromoform	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Bromomethane	1000	U	1000	80	200	NA	4/1/11 17:58		241040	
Carbon Disulfide	2000	U	2000	70	200	NA	4/1/11 17:58		241040	
Carbon Tetrachloride	1000	U	1000	72	200	NA	4/1/11 17:58		241040	
Chlorobenzene	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Chloroethane	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Chloroform	**180**	J	1000	60	200	NA	4/1/11 17:58		241040	
Chloromethane	1000	U	1000	92	200	NA	4/1/11 17:58		241040	
Cyclohexane	2000	U	2000	60	200	NA	4/1/11 17:58		241040	
Dibromochloromethane	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	200	NA	4/1/11 17:58		241040	
Dichloromethane	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Ethylbenzene	1000	U	1000	84	200	NA	4/1/11 17:58		241040	
Isopropylbenzene (Cumene)	1000	U	1000	68	200	NA	4/1/11 17:58		241040	
Methyl Acetate	2000	U	2000	140	200	NA	4/1/11 17:58		241040	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1122
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-IW0002D-037.5-20110328	**Units:**	µg/L
Lab Code:	R1101575-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Methylcyclohexane	2000	U	2000	60	200	NA	4/1/11 17:58		241040	
Styrene	1000	U	1000	70	200	NA	4/1/11 17:58		241040	
Tetrachloroethene (PCE)	1000	U	1000	84	200	NA	4/1/11 17:58		241040	
Toluene	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Trichloroethene (TCE)	**1600**		1000	60	200	NA	4/1/11 17:58		241040	
Trichlorofluoromethane (CFC 11)	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
Vinyl Chloride	**1900**		1000	60	200	NA	4/1/11 17:58		241040	
cis-1,2-Dichloroethene	**28000**		1000	60	200	NA	4/1/11 17:58		241040	
cis-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
m,p-Xylenes	1000	U	1000	170	200	NA	4/1/11 17:58		241040	
n-Butyl Acetate	1000	U	1000	60	200	NA	4/1/11 17:58		241040	
o-Xylene	1000	U	1000	80	200	NA	4/1/11 17:58		241040	
trans-1,2-Dichloroethene	**320**	J	1000	60	200	NA	4/1/11 17:58		241040	
trans-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/1/11 17:58		241040	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	4/1/11 17:58	
Dibromofluoromethane	102	89-119	4/1/11 17:58	
Toluene-d8	105	87-121	4/1/11 17:58	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1114
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0001C-038.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
1,1,2,2-Tetrachloroethane	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
1,1,2-Trichloroethane	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
1,1,2-Trichloro-1,2,2-trifluoroethane	**60000**	D	2500	200	500	NA	4/4/11 00:14		241118	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	200	NA	4/1/11 18:28		241040	
1,2,4-Trichlorobenzene	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	200	NA	4/1/11 18:28		241040	
1,2-Dibromoethane	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
1,2-Dichlorobenzene	1000	U	1000	80	200	NA	4/1/11 18:28		241040	
1,2-Dichloroethane	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
1,2-Dichloropropane	1000	U	1000	140	200	NA	4/1/11 18:28		241040	
1,3-Dichlorobenzene	1000	U	1000	72	200	NA	4/1/11 18:28		241040	
1,4-Dichlorobenzene	1000	U	1000	68	200	NA	4/1/11 18:28		241040	
n-Butanol	10000	U	10000	1400	200	NA	4/1/11 18:28		241040	
2-Butanone (MEK)	2000	U	2000	200	200	NA	4/1/11 18:28		241040	
2-Hexanone	2000	U	2000	80	200	NA	4/1/11 18:28		241040	
4-Methyl-2-pentanone	2000	U	2000	68	200	NA	4/1/11 18:28		241040	
Acetone	4000	U	4000	320	200	NA	4/1/11 18:28		241040	
Benzene	1000	U	1000	62	200	NA	4/1/11 18:28		241040	
Bromodichloromethane	1000	U	1000	82	200	NA	4/1/11 18:28		241040	
Bromoform	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Bromomethane	1000	U	1000	80	200	NA	4/1/11 18:28		241040	
Carbon Disulfide	2000	U	2000	70	200	NA	4/1/11 18:28		241040	
Carbon Tetrachloride	1000	U	1000	72	200	NA	4/1/11 18:28		241040	
Chlorobenzene	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Chloroethane	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Chloroform	**160**	J	1000	60	200	NA	4/1/11 18:28		241040	
Chloromethane	1000	U	1000	92	200	NA	4/1/11 18:28		241040	
Cyclohexane	2000	U	2000	60	200	NA	4/1/11 18:28		241040	
Dibromochloromethane	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	200	NA	4/1/11 18:28		241040	
Dichloromethane	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Ethylbenzene	1000	U	1000	84	200	NA	4/1/11 18:28		241040	
Isopropylbenzene (Cumene)	1000	U	1000	68	200	NA	4/1/11 18:28		241040	
Methyl Acetate	2000	U	2000	140	200	NA	4/1/11 18:28		241040	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1114
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0001C-038.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Methylcyclohexane	2000	U	2000	60	200	NA	4/1/11 18:28		241040	
Styrene	1000	U	1000	70	200	NA	4/1/11 18:28		241040	
Tetrachloroethene (PCE)	1000	U	1000	84	200	NA	4/1/11 18:28		241040	
Toluene	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Trichloroethene (TCE)	**46000**	E	1000	60	200	NA	4/1/11 18:28		241040	
Trichlorofluoromethane (CFC 11)	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
Vinyl Chloride	**380**	J	1000	60	200	NA	4/1/11 18:28		241040	
cis-1,2-Dichloroethene	**26000**	D	2500	150	500	NA	4/4/11 00:14		241118	
cis-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
m,p-Xylenes	1000	U	1000	170	200	NA	4/1/11 18:28		241040	
n-Butyl Acetate	1000	U	1000	60	200	NA	4/1/11 18:28		241040	
o-Xylene	1000	U	1000	80	200	NA	4/1/11 18:28		241040	
trans-1,2-Dichloroethene	**290**	J	1000	60	200	NA	4/1/11 18:28		241040	
trans-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/1/11 18:28		241040	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	4/1/11 18:28	
Dibromofluoromethane	104	89-119	4/1/11 18:28	
Toluene-d8	104	87-121	4/1/11 18:28	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 0951
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0002C-038.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	200	500	NA	4/4/11 00:44		241118	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	4/4/11 00:44		241118	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	4/4/11 00:44		241118	
1,2-Dibromoethane	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	4/4/11 00:44		241118	
1,2-Dichloroethane	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
1,2-Dichloropropane	2500	U	2500	330	500	NA	4/4/11 00:44		241118	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	4/4/11 00:44		241118	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	4/4/11 00:44		241118	
n-Butanol	25000	U	25000	3400	500	NA	4/4/11 00:44		241118	
2-Butanone (MEK)	5000	U	5000	500	500	NA	4/4/11 00:44		241118	
2-Hexanone	5000	U	5000	200	500	NA	4/4/11 00:44		241118	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	4/4/11 00:44		241118	
Acetone	10000	U	10000	800	500	NA	4/4/11 00:44		241118	
Benzene	2500	U	2500	160	500	NA	4/4/11 00:44		241118	
Bromodichloromethane	2500	U	2500	210	500	NA	4/4/11 00:44		241118	
Bromoform	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Bromomethane	2500	U	2500	200	500	NA	4/4/11 00:44		241118	
Carbon Disulfide	5000	U	5000	180	500	NA	4/4/11 00:44		241118	
Carbon Tetrachloride	2500	U	2500	180	500	NA	4/4/11 00:44		241118	
Chlorobenzene	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Chloroethane	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Chloroform	490	J	2500	150	500	NA	4/4/11 00:44		241118	
Chloromethane	2500	U	2500	230	500	NA	4/4/11 00:44		241118	
Cyclohexane	5000	U	5000	150	500	NA	4/4/11 00:44		241118	
Dibromochloromethane	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	4/4/11 00:44		241118	
Dichloromethane	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Ethylbenzene	2500	U	2500	210	500	NA	4/4/11 00:44		241118	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	4/4/11 00:44		241118	
Methyl Acetate	5000	U	5000	330	500	NA	4/4/11 00:44		241118	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 0951
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0002C-038.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Methylcyclohexane	5000	U	5000	150	500	NA	4/4/11 00:44		241118	
Styrene	2500	U	2500	180	500	NA	4/4/11 00:44		241118	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	4/4/11 00:44		241118	
Toluene	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Trichloroethene (TCE)	**5300**		2500	150	500	NA	4/4/11 00:44		241118	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
Vinyl Chloride	**2300**	J	2500	150	500	NA	4/4/11 00:44		241118	
cis-1,2-Dichloroethene	**75000**		2500	150	500	NA	4/4/11 00:44		241118	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
m,p-Xylenes	2500	U	2500	410	500	NA	4/4/11 00:44		241118	
n-Butyl Acetate	2500	U	2500	150	500	NA	4/4/11 00:44		241118	
o-Xylene	2500	U	2500	200	500	NA	4/4/11 00:44		241118	
trans-1,2-Dichloroethene	**460**	J	2500	150	500	NA	4/4/11 00:44		241118	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/4/11 00:44		241118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	4/4/11 00:44	
Dibromofluoromethane	101	89-119	4/4/11 00:44	
Toluene-d8	103	87-121	4/4/11 00:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1016
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0003C-038.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	30	100	NA	4/1/11 19:29		241040	
1,1,2,2-Tetrachloroethane	500	U	500	30	100	NA	4/1/11 19:29		241040	
1,1,2-Trichloroethane	500	U	500	30	100	NA	4/1/11 19:29		241040	
1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	40	100	NA	4/1/11 19:29		241040	
1,1-Dichloroethane (1,1-DCA)	500	U	500	30	100	NA	4/1/11 19:29		241040	
1,1-Dichloroethene (1,1-DCE)	500	U	500	37	100	NA	4/1/11 19:29		241040	
1,2,4-Trichlorobenzene	500	U	500	30	100	NA	4/1/11 19:29		241040	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	100	NA	4/1/11 19:29		241040	
1,2-Dibromoethane	500	U	500	30	100	NA	4/1/11 19:29		241040	
1,2-Dichlorobenzene	500	U	500	40	100	NA	4/1/11 19:29		241040	
1,2-Dichloroethane	500	U	500	30	100	NA	4/1/11 19:29		241040	
1,2-Dichloropropane	500	U	500	66	100	NA	4/1/11 19:29		241040	
1,3-Dichlorobenzene	500	U	500	36	100	NA	4/1/11 19:29		241040	
1,4-Dichlorobenzene	500	U	500	34	100	NA	4/1/11 19:29		241040	
n-Butanol	5000	U	5000	670	100	NA	4/1/11 19:29		241040	
2-Butanone (MEK)	1000	U	1000	100	100	NA	4/1/11 19:29		241040	
2-Hexanone	1000	U	1000	40	100	NA	4/1/11 19:29		241040	
4-Methyl-2-pentanone	1000	U	1000	34	100	NA	4/1/11 19:29		241040	
Acetone	2000	U	2000	160	100	NA	4/1/11 19:29		241040	
Benzene	500	U	500	31	100	NA	4/1/11 19:29		241040	
Bromodichloromethane	500	U	500	41	100	NA	4/1/11 19:29		241040	
Bromoform	500	U	500	30	100	NA	4/1/11 19:29		241040	
Bromomethane	500	U	500	40	100	NA	4/1/11 19:29		241040	
Carbon Disulfide	1000	U	1000	35	100	NA	4/1/11 19:29		241040	
Carbon Tetrachloride	500	U	500	36	100	NA	4/1/11 19:29		241040	
Chlorobenzene	500	U	500	30	100	NA	4/1/11 19:29		241040	
Chloroethane	500	U	500	30	100	NA	4/1/11 19:29		241040	
Chloroform	72	J	500	30	100	NA	4/1/11 19:29		241040	
Chloromethane	500	U	500	46	100	NA	4/1/11 19:29		241040	
Cyclohexane	1000	U	1000	30	100	NA	4/1/11 19:29		241040	
Dibromochloromethane	500	U	500	30	100	NA	4/1/11 19:29		241040	
Dichlorodifluoromethane (CFC 12)	500	U	500	73	100	NA	4/1/11 19:29		241040	
Dichloromethane	500	U	500	30	100	NA	4/1/11 19:29		241040	
Ethylbenzene	500	U	500	42	100	NA	4/1/11 19:29		241040	
Isopropylbenzene (Cumene)	500	U	500	34	100	NA	4/1/11 19:29		241040	
Methyl Acetate	1000	U	1000	66	100	NA	4/1/11 19:29		241040	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1016
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0003C-038.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	30	100	NA	4/1/11 19:29		241040	
Methylcyclohexane	1000	U	1000	30	100	NA	4/1/11 19:29		241040	
Styrene	500	U	500	35	100	NA	4/1/11 19:29		241040	
Tetrachloroethene (PCE)	500	U	500	42	100	NA	4/1/11 19:29		241040	
Toluene	500	U	500	30	100	NA	4/1/11 19:29		241040	
Trichloroethene (TCE)	**36**	J	500	30	100	NA	4/1/11 19:29		241040	
Trichlorofluoromethane (CFC 11)	500	U	500	30	100	NA	4/1/11 19:29		241040	
Vinyl Chloride	**3500**		500	30	100	NA	4/1/11 19:29		241040	
cis-1,2-Dichloroethene	**12000**		500	30	100	NA	4/1/11 19:29		241040	
cis-1,3-Dichloropropene	500	U	500	30	100	NA	4/1/11 19:29		241040	
m,p-Xylenes	500	U	500	81	100	NA	4/1/11 19:29		241040	
n-Butyl Acetate	500	U	500	30	100	NA	4/1/11 19:29		241040	
o-Xylene	500	U	500	40	100	NA	4/1/11 19:29		241040	
trans-1,2-Dichloroethene	**160**	J	500	30	100	NA	4/1/11 19:29		241040	
trans-1,3-Dichloropropene	500	U	500	30	100	NA	4/1/11 19:29		241040	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	4/1/11 19:29	
Dibromofluoromethane	106	89-119	4/1/11 19:29	
Toluene-d8	105	87-121	4/1/11 19:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1019
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-RW0008-052.0-20110328		
Lab Code:	R1101575-019	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**168**		mg/L	2.0	1	NA	4/7/11 11:10	
Bromide	300.0	**1.8**		mg/L	1.0	10	NA	3/30/11 15:50	
Carbon, Total Organic (TOC), Average	9060	**3.5**		mg/L	1.0	1	NA	3/31/11 17:55	
Chloride	300.0	**665**		mg/L	20	100	NA	3/31/11 00:01	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	4/7/11 14:42	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	3/30/11 15:50	*
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	3/31/11 00:01	*
Sulfate	300.0	**91.3**		mg/L	2.0	10	NA	3/30/11 15:50	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/1/11 13:20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1019
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-RW0008-052.0-20110328	**Units:**	µg/L
Lab Code:	R1101575-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
1,1,2,2-Tetrachloroethane	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
1,1,2-Trichloroethane	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
1,1,2-Trichloro-1,2,2-trifluoroethane	**130**		25	2.0	5	NA	4/4/11 01:14		241118	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
1,1-Dichloroethene (1,1-DCE)	25	U	25	1.9	5	NA	4/4/11 01:14		241118	
1,2,4-Trichlorobenzene	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	2.2	5	NA	4/4/11 01:14		241118	
1,2-Dibromoethane	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
1,2-Dichlorobenzene	25	U	25	2.0	5	NA	4/4/11 01:14		241118	
1,2-Dichloroethane	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
1,2-Dichloropropane	25	U	25	3.4	5	NA	4/4/11 01:14		241118	
1,3-Dichlorobenzene	25	U	25	1.8	5	NA	4/4/11 01:14		241118	
1,4-Dichlorobenzene	25	U	25	1.8	5	NA	4/4/11 01:14		241118	
n-Butanol	250	U	250	34	5	NA	4/4/11 01:14		241118	
2-Butanone (MEK)	50	U	50	5.0	5	NA	4/4/11 01:14		241118	
2-Hexanone	50	U	50	2.0	5	NA	4/4/11 01:14		241118	
4-Methyl-2-pentanone	50	U	50	1.8	5	NA	4/4/11 01:14		241118	
Acetone	100	U	100	8.0	5	NA	4/4/11 01:14		241118	
Benzene	25	U	25	1.6	5	NA	4/4/11 01:14		241118	
Bromodichloromethane	25	U	25	2.1	5	NA	4/4/11 01:14		241118	
Bromoform	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Bromomethane	25	U	25	2.0	5	NA	4/4/11 01:14		241118	
Carbon Disulfide	50	U	50	1.8	5	NA	4/4/11 01:14		241118	
Carbon Tetrachloride	25	U	25	1.8	5	NA	4/4/11 01:14		241118	
Chlorobenzene	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Chloroethane	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Chloroform	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Chloromethane	25	U	25	2.4	5	NA	4/4/11 01:14		241118	
Cyclohexane	50	U	50	1.5	5	NA	4/4/11 01:14		241118	
Dibromochloromethane	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Dichlorodifluoromethane (CFC 12)	25	U	25	3.7	5	NA	4/4/11 01:14		241118	
Dichloromethane	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Ethylbenzene	25	U	25	2.1	5	NA	4/4/11 01:14		241118	
Isopropylbenzene (Cumene)	25	U	25	1.8	5	NA	4/4/11 01:14		241118	
Methyl Acetate	50	U	50	3.4	5	NA	4/4/11 01:14		241118	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1019
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-RW0008-052.0-20110328	**Units:**	µg/L
Lab Code:	R1101575-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Methylcyclohexane	50	U	50	1.5	5	NA	4/4/11 01:14		241118	
Styrene	25	U	25	1.8	5	NA	4/4/11 01:14		241118	
Tetrachloroethene (PCE)	25	U	25	2.1	5	NA	4/4/11 01:14		241118	
Toluene	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Trichloroethene (TCE)	**840**		25	1.5	5	NA	4/4/11 01:14		241118	
Trichlorofluoromethane (CFC 11)	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
Vinyl Chloride	**14**	J	25	1.5	5	NA	4/4/11 01:14		241118	
cis-1,2-Dichloroethene	**280**		25	1.5	5	NA	4/4/11 01:14		241118	
cis-1,3-Dichloropropene	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
m,p-Xylenes	25	U	25	4.1	5	NA	4/4/11 01:14		241118	
n-Butyl Acetate	25	U	25	1.5	5	NA	4/4/11 01:14		241118	
o-Xylene	25	U	25	2.0	5	NA	4/4/11 01:14		241118	
trans-1,2-Dichloroethene	**1.9**	J	25	1.5	5	NA	4/4/11 01:14		241118	
trans-1,3-Dichloropropene	25	U	25	1.5	5	NA	4/4/11 01:14		241118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	4/4/11 01:14	
Dibromofluoromethane	105	89-119	4/4/11 01:14	
Toluene-d8	105	87-121	4/4/11 01:14	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1019
Sample Matrix:	Water	**Date Received:**	3/30/11
		Date Analyzed:	4/7/11 11:19
Sample Name:	LC34-RW0008-052.0-20110328	**Units:**	µg/L
Lab Code:	R1101575-019	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	241604
Data File Name:	star156.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**3.1**		1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	**7.7**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1019
Sample Matrix:	Water	**Date Received:**	3/30/11
		Date Analyzed:	4/8/11 00:33
Sample Name:	LC34-RW0008-052.0-20110328	**Units:**	mg/L
Lab Code:	R1101575-019	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	240805
Data File Name:	J:\ACQUDATA\HPLC05\DATA\040711\X0005657.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1057
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-IW0002DI-052.5-20110328	**Units:**	µg/L
Lab Code:	R1101575-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
1,1,2,2-Tetrachloroethane	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
1,1,2-Trichloroethane	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	J	13	1.0	2.5	NA	4/4/11 01:44		241118	
1,1-Dichloroethane (1,1-DCA)	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
1,1-Dichloroethene (1,1-DCE)	13	U	13	0.93	2.5	NA	4/4/11 01:44		241118	
1,2,4-Trichlorobenzene	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.1	2.5	NA	4/4/11 01:44		241118	
1,2-Dibromoethane	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
1,2-Dichlorobenzene	13	U	13	1.0	2.5	NA	4/4/11 01:44		241118	
1,2-Dichloroethane	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
1,2-Dichloropropane	13	U	13	1.7	2.5	NA	4/4/11 01:44		241118	
1,3-Dichlorobenzene	13	U	13	0.90	2.5	NA	4/4/11 01:44		241118	
1,4-Dichlorobenzene	13	U	13	0.86	2.5	NA	4/4/11 01:44		241118	
n-Butanol	130	U	130	17	2.5	NA	4/4/11 01:44		241118	
2-Butanone (MEK)	25	U	25	2.5	2.5	NA	4/4/11 01:44		241118	
2-Hexanone	25	U	25	1.0	2.5	NA	4/4/11 01:44		241118	
4-Methyl-2-pentanone	25	U	25	0.86	2.5	NA	4/4/11 01:44		241118	
Acetone	50	U	50	4.0	2.5	NA	4/4/11 01:44		241118	
Benzene	13	U	13	0.78	2.5	NA	4/4/11 01:44		241118	
Bromodichloromethane	13	U	13	1.1	2.5	NA	4/4/11 01:44		241118	
Bromoform	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Bromomethane	13	U	13	1.0	2.5	NA	4/4/11 01:44		241118	
Carbon Disulfide	25	U	25	0.88	2.5	NA	4/4/11 01:44		241118	
Carbon Tetrachloride	13	U	13	0.90	2.5	NA	4/4/11 01:44		241118	
Chlorobenzene	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Chloroethane	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Chloroform	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Chloromethane	13	U	13	1.2	2.5	NA	4/4/11 01:44		241118	
Cyclohexane	25	U	25	0.75	2.5	NA	4/4/11 01:44		241118	
Dibromochloromethane	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Dichlorodifluoromethane (CFC 12)	13	U	13	1.9	2.5	NA	4/4/11 01:44		241118	
Dichloromethane	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Ethylbenzene	13	U	13	1.1	2.5	NA	4/4/11 01:44		241118	
Isopropylbenzene (Cumene)	13	U	13	0.86	2.5	NA	4/4/11 01:44		241118	
Methyl Acetate	25	U	25	1.7	2.5	NA	4/4/11 01:44		241118	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11 1057
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-IW0002DI-052.5-20110328	**Units:**	µg/L
Lab Code:	R1101575-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Methylcyclohexane	25	U	25	0.75	2.5	NA	4/4/11 01:44		241118	
Styrene	13	U	13	0.88	2.5	NA	4/4/11 01:44		241118	
Tetrachloroethene (PCE)	13	U	13	1.1	2.5	NA	4/4/11 01:44		241118	
Toluene	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Trichloroethene (TCE)	**75**		13	0.75	2.5	NA	4/4/11 01:44		241118	
Trichlorofluoromethane (CFC 11)	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
Vinyl Chloride	**1.9**	J	13	0.75	2.5	NA	4/4/11 01:44		241118	
cis-1,2-Dichloroethene	**350**		13	0.75	2.5	NA	4/4/11 01:44		241118	
cis-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
m,p-Xylenes	13	U	13	2.1	2.5	NA	4/4/11 01:44		241118	
n-Butyl Acetate	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	
o-Xylene	13	U	13	1.0	2.5	NA	4/4/11 01:44		241118	
trans-1,2-Dichloroethene	**3.0**	J	13	0.75	2.5	NA	4/4/11 01:44		241118	
trans-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/4/11 01:44		241118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	4/4/11 01:44	
Dibromofluoromethane	102	89-119	4/4/11 01:44	
Toluene-d8	105	87-121	4/4/11 01:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1149
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0001E-052.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
1,1,2,2-Tetrachloroethane	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
1,1,2-Trichloroethane	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1.5**	J	13	1.0	2.5	NA	4/4/11 02:15		241118	
1,1-Dichloroethane (1,1-DCA)	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
1,1-Dichloroethene (1,1-DCE)	13	U	13	0.93	2.5	NA	4/4/11 02:15		241118	
1,2,4-Trichlorobenzene	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.1	2.5	NA	4/4/11 02:15		241118	
1,2-Dibromoethane	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
1,2-Dichlorobenzene	13	U	13	1.0	2.5	NA	4/4/11 02:15		241118	
1,2-Dichloroethane	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
1,2-Dichloropropane	13	U	13	1.7	2.5	NA	4/4/11 02:15		241118	
1,3-Dichlorobenzene	13	U	13	0.90	2.5	NA	4/4/11 02:15		241118	
1,4-Dichlorobenzene	13	U	13	0.86	2.5	NA	4/4/11 02:15		241118	
n-Butanol	130	U	130	17	2.5	NA	4/4/11 02:15		241118	
2-Butanone (MEK)	25	U	25	2.5	2.5	NA	4/4/11 02:15		241118	
2-Hexanone	25	U	25	1.0	2.5	NA	4/4/11 02:15		241118	
4-Methyl-2-pentanone	25	U	25	0.86	2.5	NA	4/4/11 02:15		241118	
Acetone	50	U	50	4.0	2.5	NA	4/4/11 02:15		241118	
Benzene	13	U	13	0.78	2.5	NA	4/4/11 02:15		241118	
Bromodichloromethane	13	U	13	1.1	2.5	NA	4/4/11 02:15		241118	
Bromoform	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Bromomethane	13	U	13	1.0	2.5	NA	4/4/11 02:15		241118	
Carbon Disulfide	25	U	25	0.88	2.5	NA	4/4/11 02:15		241118	
Carbon Tetrachloride	13	U	13	0.90	2.5	NA	4/4/11 02:15		241118	
Chlorobenzene	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Chloroethane	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Chloroform	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Chloromethane	13	U	13	1.2	2.5	NA	4/4/11 02:15		241118	
Cyclohexane	25	U	25	0.75	2.5	NA	4/4/11 02:15		241118	
Dibromochloromethane	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Dichlorodifluoromethane (CFC 12)	13	U	13	1.9	2.5	NA	4/4/11 02:15		241118	
Dichloromethane	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Ethylbenzene	13	U	13	1.1	2.5	NA	4/4/11 02:15		241118	
Isopropylbenzene (Cumene)	13	U	13	0.86	2.5	NA	4/4/11 02:15		241118	
Methyl Acetate	25	U	25	1.7	2.5	NA	4/4/11 02:15		241118	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1149
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0001E-052.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Methylcyclohexane	25	U	25	0.75	2.5	NA	4/4/11 02:15		241118	
Styrene	13	U	13	0.88	2.5	NA	4/4/11 02:15		241118	
Tetrachloroethene (PCE)	13	U	13	1.1	2.5	NA	4/4/11 02:15		241118	
Toluene	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Trichloroethene (TCE)	400		13	0.75	2.5	NA	4/4/11 02:15		241118	
Trichlorofluoromethane (CFC 11)	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
Vinyl Chloride	0.83	J	13	0.75	2.5	NA	4/4/11 02:15		241118	
cis-1,2-Dichloroethene	71		13	0.75	2.5	NA	4/4/11 02:15		241118	
cis-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
m,p-Xylenes	13	U	13	2.1	2.5	NA	4/4/11 02:15		241118	
n-Butyl Acetate	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
o-Xylene	13	U	13	1.0	2.5	NA	4/4/11 02:15		241118	
trans-1,2-Dichloroethene	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	
trans-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/4/11 02:15		241118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	4/4/11 02:15	
Dibromofluoromethane	102	89-119	4/4/11 02:15	
Toluene-d8	102	87-121	4/4/11 02:15	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1049
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0003E-052.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.74**	J	5.0	0.40	1	NA	4/1/11 21:30		241040	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/1/11 21:30		241040	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/1/11 21:30		241040	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/1/11 21:30		241040	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/1/11 21:30		241040	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/1/11 21:30		241040	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/1/11 21:30		241040	
n-Butanol	50	U	50	6.7	1	NA	4/1/11 21:30		241040	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/1/11 21:30		241040	
2-Hexanone	10	U	10	0.40	1	NA	4/1/11 21:30		241040	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/1/11 21:30		241040	
Acetone	20	U	20	1.6	1	NA	4/1/11 21:30		241040	
Benzene	5.0	U	5.0	0.31	1	NA	4/1/11 21:30		241040	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/1/11 21:30		241040	
Bromoform	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/1/11 21:30		241040	
Carbon Disulfide	10	U	10	0.35	1	NA	4/1/11 21:30		241040	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/1/11 21:30		241040	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Chloroform	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/1/11 21:30		241040	
Cyclohexane	10	U	10	0.30	1	NA	4/1/11 21:30		241040	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/1/11 21:30		241040	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/1/11 21:30		241040	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/1/11 21:30		241040	
Methyl Acetate	10	U	10	0.66	1	NA	4/1/11 21:30		241040	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11 1049
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-BW0003E-052.5-20110329	**Units:**	µg/L
Lab Code:	R1101575-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Methylcyclohexane	10	U	10	0.30	1	NA	4/1/11 21:30		241040	
Styrene	5.0	U	5.0	0.35	1	NA	4/1/11 21:30		241040	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/1/11 21:30		241040	
Toluene	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Trichloroethene (TCE)	**0.43**	J	5.0	0.30	1	NA	4/1/11 21:30		241040	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
cis-1,2-Dichloroethene	**1.2**	J	5.0	0.30	1	NA	4/1/11 21:30		241040	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/1/11 21:30		241040	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/1/11 21:30		241040	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/1/11 21:30		241040	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	4/1/11 21:30	
Dibromofluoromethane	106	89-119	4/1/11 21:30	
Toluene-d8	107	87-121	4/1/11 21:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-FD-20110328-01	**Units:**	µg/L
Lab Code:	R1101575-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
1,1,2,2-Tetrachloroethane	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
1,1,2-Trichloroethane	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
1,1,2-Trichloro-1,2,2-trifluoroethane	**7100**		1000	80	200	NA	4/1/11 22:01		241040	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	200	NA	4/1/11 22:01		241040	
1,2,4-Trichlorobenzene	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	200	NA	4/1/11 22:01		241040	
1,2-Dibromoethane	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
1,2-Dichlorobenzene	1000	U	1000	80	200	NA	4/1/11 22:01		241040	
1,2-Dichloroethane	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
1,2-Dichloropropane	1000	U	1000	140	200	NA	4/1/11 22:01		241040	
1,3-Dichlorobenzene	1000	U	1000	72	200	NA	4/1/11 22:01		241040	
1,4-Dichlorobenzene	1000	U	1000	68	200	NA	4/1/11 22:01		241040	
n-Butanol	10000	U	10000	1400	200	NA	4/1/11 22:01		241040	
2-Butanone (MEK)	2000	U	2000	200	200	NA	4/1/11 22:01		241040	
2-Hexanone	2000	U	2000	80	200	NA	4/1/11 22:01		241040	
4-Methyl-2-pentanone	2000	U	2000	68	200	NA	4/1/11 22:01		241040	
Acetone	4000	U	4000	320	200	NA	4/1/11 22:01		241040	
Benzene	1000	U	1000	62	200	NA	4/1/11 22:01		241040	
Bromodichloromethane	1000	U	1000	82	200	NA	4/1/11 22:01		241040	
Bromoform	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Bromomethane	1000	U	1000	80	200	NA	4/1/11 22:01		241040	
Carbon Disulfide	2000	U	2000	70	200	NA	4/1/11 22:01		241040	
Carbon Tetrachloride	1000	U	1000	72	200	NA	4/1/11 22:01		241040	
Chlorobenzene	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Chloroethane	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Chloroform	**210**	J	1000	60	200	NA	4/1/11 22:01		241040	
Chloromethane	1000	U	1000	92	200	NA	4/1/11 22:01		241040	
Cyclohexane	2000	U	2000	60	200	NA	4/1/11 22:01		241040	
Dibromochloromethane	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	200	NA	4/1/11 22:01		241040	
Dichloromethane	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Ethylbenzene	1000	U	1000	84	200	NA	4/1/11 22:01		241040	
Isopropylbenzene (Cumene)	1000	U	1000	68	200	NA	4/1/11 22:01		241040	
Methyl Acetate	2000	U	2000	140	200	NA	4/1/11 22:01		241040	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/28/11
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-FD-20110328-01	**Units:**	µg/L
Lab Code:	R1101575-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Methylcyclohexane	2000	U	2000	60	200	NA	4/1/11 22:01		241040	
Styrene	1000	U	1000	70	200	NA	4/1/11 22:01		241040	
Tetrachloroethene (PCE)	1000	U	1000	84	200	NA	4/1/11 22:01		241040	
Toluene	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Trichloroethene (TCE)	**16000**		1000	60	200	NA	4/1/11 22:01		241040	
Trichlorofluoromethane (CFC 11)	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
Vinyl Chloride	**810**	J	1000	60	200	NA	4/1/11 22:01		241040	
cis-1,2-Dichloroethene	**32000**		1000	60	200	NA	4/1/11 22:01		241040	
cis-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
m,p-Xylenes	1000	U	1000	170	200	NA	4/1/11 22:01		241040	
n-Butyl Acetate	1000	U	1000	60	200	NA	4/1/11 22:01		241040	
o-Xylene	1000	U	1000	80	200	NA	4/1/11 22:01		241040	
trans-1,2-Dichloroethene	**200**	J	1000	60	200	NA	4/1/11 22:01		241040	
trans-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/1/11 22:01		241040	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	4/1/11 22:01	
Dibromofluoromethane	105	89-119	4/1/11 22:01	
Toluene-d8	107	87-121	4/1/11 22:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-TB-20110329-01	**Units:**	µg/L
Lab Code:	R1101575-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/1/11 22:31		241040	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/1/11 22:31		241040	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/1/11 22:31		241040	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/1/11 22:31		241040	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/1/11 22:31		241040	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/1/11 22:31		241040	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/1/11 22:31		241040	
n-Butanol	50	U	50	6.7	1	NA	4/1/11 22:31		241040	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/1/11 22:31		241040	
2-Hexanone	10	U	10	0.40	1	NA	4/1/11 22:31		241040	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/1/11 22:31		241040	
Acetone	20	U	20	1.6	1	NA	4/1/11 22:31		241040	
Benzene	5.0	U	5.0	0.31	1	NA	4/1/11 22:31		241040	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/1/11 22:31		241040	
Bromoform	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/1/11 22:31		241040	
Carbon Disulfide	10	U	10	0.35	1	NA	4/1/11 22:31		241040	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/1/11 22:31		241040	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Chloroform	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/1/11 22:31		241040	
Cyclohexane	10	U	10	0.30	1	NA	4/1/11 22:31		241040	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/1/11 22:31		241040	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/1/11 22:31		241040	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/1/11 22:31		241040	
Methyl Acetate	10	U	10	0.66	1	NA	4/1/11 22:31		241040	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	3/29/11
Sample Matrix:	Water	**Date Received:**	3/30/11
Sample Name:	LC34-TB-20110329-01	**Units:**	µg/L
Lab Code:	R1101575-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Methylcyclohexane	10	U	10	0.30	1	NA	4/1/11 22:31		241040	
Styrene	5.0	U	5.0	0.35	1	NA	4/1/11 22:31		241040	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/1/11 22:31		241040	
Toluene	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/1/11 22:31		241040	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/1/11 22:31		241040	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/1/11 22:31		241040	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	4/1/11 22:31	
Dibromofluoromethane	103	89-119	4/1/11 22:31	
Toluene-d8	100	87-121	4/1/11 22:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1101575-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	4/7/11 11:10	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	3/29/11 16:05	
Carbon, Total Organic (TOC), Average	9060	1.0	U	mg/L	1.0	1	NA	3/25/11 17:19	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	3/30/11 22:55	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	4/7/11 13:39	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	3/30/11 11:54	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	3/30/11 22:55	
Sulfate	300.0	**0.42**		mg/L	0.20	1	NA	3/30/11 11:54	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/1/11 13:20	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1101575-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	3/30/11 11:54	
Carbon, Total Organic (TOC), Average	9060	1.0	U	mg/L	1.0	1	NA	3/31/11 16:09	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	3/31/11 12:06	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102558-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	3/28/11 11:50		240184	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	3/28/11 11:50		240184	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	3/28/11 11:50		240184	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	3/28/11 11:50		240184	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	3/28/11 11:50		240184	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	3/28/11 11:50		240184	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	3/28/11 11:50		240184	
n-Butanol	50	U	50	6.7	1	NA	3/28/11 11:50		240184	
2-Butanone (MEK)	10	U	10	1.0	1	NA	3/28/11 11:50		240184	
2-Hexanone	10	U	10	0.40	1	NA	3/28/11 11:50		240184	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	3/28/11 11:50		240184	
Acetone	20	U	20	1.6	1	NA	3/28/11 11:50		240184	
Benzene	5.0	U	5.0	0.31	1	NA	3/28/11 11:50		240184	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	3/28/11 11:50		240184	
Bromoform	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Bromomethane	5.0	U	5.0	0.40	1	NA	3/28/11 11:50		240184	
Carbon Disulfide	10	U	10	0.35	1	NA	3/28/11 11:50		240184	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	3/28/11 11:50		240184	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Chloroethane	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Chloroform	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Chloromethane	5.0	U	5.0	0.46	1	NA	3/28/11 11:50		240184	
Cyclohexane	10	U	10	0.30	1	NA	3/28/11 11:50		240184	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	3/28/11 11:50		240184	
Dichloromethane	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	3/28/11 11:50		240184	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	3/28/11 11:50		240184	
Methyl Acetate	10	U	10	0.66	1	NA	3/28/11 11:50		240184	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102558-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240184

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Methylcyclohexane	10	U	10	0.30	1	NA	3/28/11 11:50		240184	
Styrene	5.0	U	5.0	0.35	1	NA	3/28/11 11:50		240184	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	3/28/11 11:50		240184	
Toluene	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	3/28/11 11:50		240184	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
o-Xylene	5.0	U	5.0	0.40	1	NA	3/28/11 11:50		240184	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/28/11 11:50		240184	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	3/28/11 11:50	
Dibromofluoromethane	103	89-119	3/28/11 11:50	
Toluene-d8	101	87-121	3/28/11 11:50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102644-09	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	3/29/11 10:48		240517	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	3/29/11 10:48		240517	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	3/29/11 10:48		240517	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	3/29/11 10:48		240517	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	3/29/11 10:48		240517	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	3/29/11 10:48		240517	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	3/29/11 10:48		240517	
n-Butanol	50	U	50	6.7	1	NA	3/29/11 10:48		240517	
2-Butanone (MEK)	10	U	10	1.0	1	NA	3/29/11 10:48		240517	
2-Hexanone	10	U	10	0.40	1	NA	3/29/11 10:48		240517	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	3/29/11 10:48		240517	
Acetone	20	U	20	1.6	1	NA	3/29/11 10:48		240517	
Benzene	5.0	U	5.0	0.31	1	NA	3/29/11 10:48		240517	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	3/29/11 10:48		240517	
Bromoform	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Bromomethane	5.0	U	5.0	0.40	1	NA	3/29/11 10:48		240517	
Carbon Disulfide	10	U	10	0.35	1	NA	3/29/11 10:48		240517	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	3/29/11 10:48		240517	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Chloroethane	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Chloroform	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Chloromethane	5.0	U	5.0	0.46	1	NA	3/29/11 10:48		240517	
Cyclohexane	10	U	10	0.30	1	NA	3/29/11 10:48		240517	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	3/29/11 10:48		240517	
Dichloromethane	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	3/29/11 10:48		240517	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	3/29/11 10:48		240517	
Methyl Acetate	10	U	10	0.66	1	NA	3/29/11 10:48		240517	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102644-09	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240517

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Methylcyclohexane	10	U	10	0.30	1	NA	3/29/11 10:48		240517	
Styrene	5.0	U	5.0	0.35	1	NA	3/29/11 10:48		240517	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	3/29/11 10:48		240517	
Toluene	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	3/29/11 10:48		240517	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
o-Xylene	5.0	U	5.0	0.40	1	NA	3/29/11 10:48		240517	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/29/11 10:48		240517	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	3/29/11 10:48	
Dibromofluoromethane	102	89-119	3/29/11 10:48	
Toluene-d8	103	87-121	3/29/11 10:48	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102791-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240878

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	3/31/11 15:22		240878	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	3/31/11 15:22		240878	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	3/31/11 15:22		240878	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	3/31/11 15:22		240878	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	3/31/11 15:22		240878	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	3/31/11 15:22		240878	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	3/31/11 15:22		240878	
n-Butanol	50	U	50	6.7	1	NA	3/31/11 15:22		240878	
2-Butanone (MEK)	10	U	10	1.0	1	NA	3/31/11 15:22		240878	
2-Hexanone	10	U	10	0.40	1	NA	3/31/11 15:22		240878	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	3/31/11 15:22		240878	
Acetone	20	U	20	1.6	1	NA	3/31/11 15:22		240878	
Benzene	5.0	U	5.0	0.31	1	NA	3/31/11 15:22		240878	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	3/31/11 15:22		240878	
Bromoform	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Bromomethane	5.0	U	5.0	0.40	1	NA	3/31/11 15:22		240878	
Carbon Disulfide	10	U	10	0.35	1	NA	3/31/11 15:22		240878	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	3/31/11 15:22		240878	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Chloroethane	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Chloroform	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Chloromethane	5.0	U	5.0	0.46	1	NA	3/31/11 15:22		240878	
Cyclohexane	10	U	10	0.30	1	NA	3/31/11 15:22		240878	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	3/31/11 15:22		240878	
Dichloromethane	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	3/31/11 15:22		240878	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	3/31/11 15:22		240878	
Methyl Acetate	10	U	10	0.66	1	NA	3/31/11 15:22		240878	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102791-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 240878

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Methylcyclohexane	10	U	10	0.30	1	NA	3/31/11 15:22		240878	
Styrene	5.0	U	5.0	0.35	1	NA	3/31/11 15:22		240878	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	3/31/11 15:22		240878	
Toluene	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	3/31/11 15:22		240878	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
o-Xylene	5.0	U	5.0	0.40	1	NA	3/31/11 15:22		240878	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	3/31/11 15:22		240878	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	3/31/11 15:22	
Dibromofluoromethane	103	89-119	3/31/11 15:22	
Toluene-d8	104	87-121	3/31/11 15:22	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102808-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/1/11 16:26		241040	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/1/11 16:26		241040	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/1/11 16:26		241040	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/1/11 16:26		241040	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/1/11 16:26		241040	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/1/11 16:26		241040	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/1/11 16:26		241040	
n-Butanol	50	U	50	6.7	1	NA	4/1/11 16:26		241040	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/1/11 16:26		241040	
2-Hexanone	10	U	10	0.40	1	NA	4/1/11 16:26		241040	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/1/11 16:26		241040	
Acetone	20	U	20	1.6	1	NA	4/1/11 16:26		241040	
Benzene	5.0	U	5.0	0.31	1	NA	4/1/11 16:26		241040	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/1/11 16:26		241040	
Bromoform	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/1/11 16:26		241040	
Carbon Disulfide	10	U	10	0.35	1	NA	4/1/11 16:26		241040	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/1/11 16:26		241040	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Chloroform	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/1/11 16:26		241040	
Cyclohexane	10	U	10	0.30	1	NA	4/1/11 16:26		241040	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/1/11 16:26		241040	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/1/11 16:26		241040	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/1/11 16:26		241040	
Methyl Acetate	10	U	10	0.66	1	NA	4/1/11 16:26		241040	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102808-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241040

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Methylcyclohexane	10	U	10	0.30	1	NA	4/1/11 16:26		241040	
Styrene	5.0	U	5.0	0.35	1	NA	4/1/11 16:26		241040	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/1/11 16:26		241040	
Toluene	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/1/11 16:26		241040	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/1/11 16:26		241040	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/1/11 16:26		241040	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	4/1/11 16:26	
Dibromofluoromethane	103	89-119	4/1/11 16:26	
Toluene-d8	104	87-121	4/1/11 16:26	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102865-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/3/11 17:10		241118	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/3/11 17:10		241118	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/3/11 17:10		241118	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/3/11 17:10		241118	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/3/11 17:10		241118	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/3/11 17:10		241118	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/3/11 17:10		241118	
n-Butanol	50	U	50	6.7	1	NA	4/3/11 17:10		241118	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/3/11 17:10		241118	
2-Hexanone	10	U	10	0.40	1	NA	4/3/11 17:10		241118	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/3/11 17:10		241118	
Acetone	20	U	20	1.6	1	NA	4/3/11 17:10		241118	
Benzene	5.0	U	5.0	0.31	1	NA	4/3/11 17:10		241118	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/3/11 17:10		241118	
Bromoform	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/3/11 17:10		241118	
Carbon Disulfide	10	U	10	0.35	1	NA	4/3/11 17:10		241118	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/3/11 17:10		241118	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Chloroform	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/3/11 17:10		241118	
Cyclohexane	10	U	10	0.30	1	NA	4/3/11 17:10		241118	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/3/11 17:10		241118	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/3/11 17:10		241118	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/3/11 17:10		241118	
Methyl Acetate	10	U	10	0.66	1	NA	4/3/11 17:10		241118	

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102865-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 241118

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Methylcyclohexane	10	U	10	0.30	1	NA	4/3/11 17:10		241118	
Styrene	5.0	U	5.0	0.35	1	NA	4/3/11 17:10		241118	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/3/11 17:10		241118	
Toluene	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/3/11 17:10		241118	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/3/11 17:10		241118	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/3/11 17:10		241118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	4/3/11 17:10	
Dibromofluoromethane	101	89-119	4/3/11 17:10	
Toluene-d8	104	87-121	4/3/11 17:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	4/7/11 10:33
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1102968-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	241604
Data File Name:	star152.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	3/24/11 15:13
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1102523-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	240058
Data File Name:	J:\ACQUDATA\HPLC05\DATA\032411\X0005578.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	4/7/11 11:05
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1102737-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	240805
Data File Name:	J:\ACQUDATA\HPLC05\DATA\040711\X0005644.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 4/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1101575-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1101575-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.82	5.6	105	5.77	5.6	104	56 - 138	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/25/11 - 4/ 7/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1101575-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.946	1.00	95	90 - 110
Chloride	300.0	1.94	2.00	97	90 - 110
Iodide	300.0	0.956	1.00	96	90 - 110
Nitrate as Nitrogen	300.0	0.986	1.00	99	90 - 110
Sulfate	300.0	1.86	2.00	93	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	18.9	20.0	95	72 - 115
Carbon, Total Organic (TOC), Average	9060	9.46	10.0	95	86 - 117
Nitrite as Nitrogen	300.0	0.978	1.00	98	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/30/11 - 3/31/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1101575-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.00	1.00	100	90 - 110
Carbon, Total Organic (TOC), Average	9060	9.73	10.0	97	86 - 117
Nitrite as Nitrogen	300.0	0.966	1.00	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 240184

Analyte Name	Lab Control Sample RQ1102558-04 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.4	20.0	82	72 - 128
1,1,2,2-Tetrachloroethane	17.6	20.0	88	72 - 131
1,1,2-Trichloroethane	18.1	20.0	90	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.4	20.0	82	71 - 134
1,1-Dichloroethane (1,1-DCA)	17.2	20.0	86	76 - 122
1,1-Dichloroethene (1,1-DCE)	15.7	20.0	79	72 - 129
1,2,4-Trichlorobenzene	18.1	20.0	91	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.9	20.0	95	62 - 131
1,2-Dibromoethane	18.1	20.0	91	78 - 125
1,2-Dichlorobenzene	18.3	20.0	92	79 - 124
1,2-Dichloroethane	20.3	20.0	101	78 - 126
1,2-Dichloropropane	17.4	20.0	87	80 - 123
1,3-Dichlorobenzene	18.4	20.0	92	78 - 124
1,4-Dichlorobenzene	18.8	20.0	94	78 - 123
n-Butanol	938	1000	94	70 - 130
2-Butanone (MEK)	16.4	20.0	82	60 - 133
2-Hexanone	16.2	20.0	81	61 - 131
4-Methyl-2-pentanone	17.4	20.0	87	61 - 132
Acetone	16.9	20.0	85	59 - 140
Benzene	17.5	20.0	88	78 - 121
Bromodichloromethane	18.7	20.0	93	80 - 125
Bromoform	17.9	20.0	89	73 - 132
Bromomethane	18.5	20.0	92	57 - 144
Carbon Disulfide	18.8	20.0	94	59 - 138
Carbon Tetrachloride	16.9	20.0	85	69 - 135
Chlorobenzene	18.1	20.0	91	80 - 121
Chloroethane	17.8	20.0	89	71 - 130
Chloroform	17.0	20.0	85	78 - 125
Chloromethane	20.1	20.0	100	62 - 133
Cyclohexane	17.6	20.0	88	67 - 127
Dibromochloromethane	17.3	20.0	86	78 - 133
Dichlorodifluoromethane (CFC 12)	23.6	20.0	118	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 240184

Lab Control Sample
RQ1102558-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	16.4	20.0	82	75 - 125
Ethylbenzene	18.4	20.0	92	78 - 123
Isopropylbenzene (Cumene)	18.8	20.0	94	73 - 133
Methyl Acetate	16.9	20.0	85	57 - 157
Methyl tert-Butyl Ether	17.3	20.0	87	75 - 126
Methylcyclohexane	17.0	20.0	85	64 - 133
Styrene	18.4	20.0	92	80 - 132
Tetrachloroethene (PCE)	18.3	20.0	92	72 - 131
Toluene	18.0	20.0	90	78 - 122
Trichloroethene (TCE)	17.1	20.0	86	74 - 127
Trichlorofluoromethane (CFC 11)	19.6	20.0	98	71 - 139
Vinyl Chloride	20.7	20.0	104	71 - 136
cis-1,2-Dichloroethene	17.1	20.0	85	78 - 122
cis-1,3-Dichloropropene	17.8	20.0	89	77 - 125
m,p-Xylenes	35.1	40.0	88	79 - 126
n-Butyl Acetate	17.9	20.0	90	54 - 127
o-Xylene	17.8	20.0	89	79 - 126
trans-1,2-Dichloroethene	15.4	20.0	77	75 - 121
trans-1,3-Dichloropropene	18.1	20.0	90	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 240517

Analyte Name	Lab Control Sample RQ1102644-10 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.9	20.0	84	72 - 128
1,1,2,2-Tetrachloroethane	17.7	20.0	88	72 - 131
1,1,2-Trichloroethane	18.4	20.0	92	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.7	20.0	84	71 - 134
1,1-Dichloroethane (1,1-DCA)	17.4	20.0	87	76 - 122
1,1-Dichloroethene (1,1-DCE)	17.3	20.0	87	72 - 129
1,2,4-Trichlorobenzene	20.5	20.0	102	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.6	20.0	98	62 - 131
1,2-Dibromoethane	19.4	20.0	97	78 - 125
1,2-Dichlorobenzene	20.6	20.0	103	79 - 124
1,2-Dichloroethane	19.6	20.0	98	78 - 126
1,2-Dichloropropane	18.3	20.0	92	80 - 123
1,3-Dichlorobenzene	20.7	20.0	103	78 - 124
1,4-Dichlorobenzene	20.7	20.0	103	78 - 123
n-Butanol	820	1000	82	70 - 130
2-Butanone (MEK)	16.1	20.0	80	60 - 133
2-Hexanone	17.7	20.0	88	61 - 131
4-Methyl-2-pentanone	18.1	20.0	91	61 - 132
Acetone	14.5	20.0	72	59 - 140
Benzene	18.8	20.0	94	78 - 121
Bromodichloromethane	18.8	20.0	94	80 - 125
Bromoform	19.2	20.0	96	73 - 132
Bromomethane	20.3	20.0	101	57 - 144
Carbon Disulfide	18.8	20.0	94	59 - 138
Carbon Tetrachloride	17.7	20.0	89	69 - 135
Chlorobenzene	20.5	20.0	102	80 - 121
Chloroethane	19.6	20.0	98	71 - 130
Chloroform	16.6	20.0	83	78 - 125
Chloromethane	20.2	20.0	101	62 - 133
Cyclohexane	17.3	20.0	87	67 - 127
Dibromochloromethane	19.0	20.0	95	78 - 133
Dichlorodifluoromethane (CFC 12)	22.9	20.0	114	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 240517

Lab Control Sample
RQ1102644-10

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	16.9	20.0	84	75 - 125
Ethylbenzene	19.7	20.0	98	78 - 123
Isopropylbenzene (Cumene)	20.4	20.0	102	73 - 133
Methyl Acetate	16.3	20.0	81	57 - 157
Methyl tert-Butyl Ether	17.1	20.0	86	75 - 126
Methylcyclohexane	16.9	20.0	84	64 - 133
Styrene	19.9	20.0	99	80 - 132
Tetrachloroethene (PCE)	21.9	20.0	110	72 - 131
Toluene	19.3	20.0	97	78 - 122
Trichloroethene (TCE)	18.1	20.0	90	74 - 127
Trichlorofluoromethane (CFC 11)	19.5	20.0	97	71 - 139
Vinyl Chloride	22.8	20.0	114	71 - 136
cis-1,2-Dichloroethene	18.0	20.0	90	78 - 122
cis-1,3-Dichloropropene	17.3	20.0	86	77 - 125
m,p-Xylenes	39.7	40.0	99	79 - 126
n-Butyl Acetate	18.4	20.0	92	54 - 127
o-Xylene	20.0	20.0	100	79 - 126
trans-1,2-Dichloroethene	16.6	20.0	83	75 - 121
trans-1,3-Dichloropropene	18.0	20.0	90	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/31/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 240878

Lab Control Sample
RQ1102791-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.5	20.0	93	72 - 128
1,1,2,2-Tetrachloroethane	18.4	20.0	92	72 - 131
1,1,2-Trichloroethane	19.5	20.0	97	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.5	20.0	92	71 - 134
1,1-Dichloroethane (1,1-DCA)	20.2	20.0	101	76 - 122
1,1-Dichloroethene (1,1-DCE)	17.9	20.0	90	72 - 129
1,2,4-Trichlorobenzene	21.4	20.0	107	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.3	20.0	107	62 - 131
1,2-Dibromoethane	19.9	20.0	99	78 - 125
1,2-Dichlorobenzene	20.3	20.0	102	79 - 124
1,2-Dichloroethane	19.9	20.0	100	78 - 126
1,2-Dichloropropane	20.4	20.0	102	80 - 123
1,3-Dichlorobenzene	19.8	20.0	99	78 - 124
1,4-Dichlorobenzene	19.6	20.0	98	78 - 123
n-Butanol	991	1000	99	70 - 130
2-Butanone (MEK)	18.6	20.0	93	60 - 133
2-Hexanone	19.3	20.0	97	61 - 131
4-Methyl-2-pentanone	19.8	20.0	99	61 - 132
Acetone	17.4	20.0	87	59 - 140
Benzene	19.7	20.0	99	78 - 121
Bromodichloromethane	19.3	20.0	96	80 - 125
Bromoform	20.5	20.0	102	73 - 132
Bromomethane	17.1	20.0	85	57 - 144
Carbon Disulfide	21.4	20.0	107	59 - 138
Carbon Tetrachloride	18.6	20.0	93	69 - 135
Chlorobenzene	19.5	20.0	98	80 - 121
Chloroethane	18.9	20.0	95	71 - 130
Chloroform	19.3	20.0	96	78 - 125
Chloromethane	19.0	20.0	95	62 - 133
Cyclohexane	18.8	20.0	94	67 - 127
Dibromochloromethane	20.7	20.0	104	78 - 133
Dichlorodifluoromethane (CFC 12)	17.2	20.0	86	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/31/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 240878

Lab Control Sample
RQ1102791-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.3	20.0	91	75 - 125
Ethylbenzene	20.1	20.0	100	78 - 123
Isopropylbenzene (Cumene)	22.8	20.0	114	73 - 133
Methyl Acetate	18.2	20.0	91	57 - 157
Methyl tert-Butyl Ether	19.4	20.0	97	75 - 126
Methylcyclohexane	20.3	20.0	101	64 - 133
Styrene	20.6	20.0	103	80 - 132
Tetrachloroethene (PCE)	19.1	20.0	96	72 - 131
Toluene	20.1	20.0	100	78 - 122
Trichloroethene (TCE)	19.0	20.0	95	74 - 127
Trichlorofluoromethane (CFC 11)	18.6	20.0	93	71 - 139
Vinyl Chloride	19.2	20.0	96	71 - 136
cis-1,2-Dichloroethene	19.4	20.0	97	78 - 122
cis-1,3-Dichloropropene	18.9	20.0	95	77 - 125
m,p-Xylenes	41.2	40.0	103	79 - 126
n-Butyl Acetate	20.3	20.0	102	54 - 127
o-Xylene	20.5	20.0	102	79 - 126
trans-1,2-Dichloroethene	19.4	20.0	97	75 - 121
trans-1,3-Dichloropropene	18.9	20.0	95	69 - 127

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 4/ 1/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 241040

Analyte Name	Lab Control Sample RQ1102808-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.3	20.0	82	72 - 128
1,1,2,2-Tetrachloroethane	17.9	20.0	89	72 - 131
1,1,2-Trichloroethane	17.6	20.0	88	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.6	20.0	78	71 - 134
1,1-Dichloroethane (1,1-DCA)	17.7	20.0	89	76 - 122
1,1-Dichloroethene (1,1-DCE)	15.5	20.0	78	72 - 129
1,2,4-Trichlorobenzene	19.5	20.0	97	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.6	20.0	88	62 - 131
1,2-Dibromoethane	17.3	20.0	87	78 - 125
1,2-Dichlorobenzene	18.6	20.0	93	79 - 124
1,2-Dichloroethane	18.0	20.0	90	78 - 126
1,2-Dichloropropane	17.8	20.0	89	80 - 123
1,3-Dichlorobenzene	18.2	20.0	91	78 - 124
1,4-Dichlorobenzene	18.3	20.0	91	78 - 123
n-Butanol	938	1000	94	70 - 130
2-Butanone (MEK)	17.5	20.0	87	60 - 133
2-Hexanone	16.8	20.0	84	61 - 131
4-Methyl-2-pentanone	18.9	20.0	95	61 - 132
Acetone	19.3	20.0	96	59 - 140
Benzene	17.7	20.0	89	78 - 121
Bromodichloromethane	17.5	20.0	87	80 - 125
Bromoform	17.9	20.0	89	73 - 132
Bromomethane	15.4	20.0	77	57 - 144
Carbon Disulfide	22.3	20.0	111	59 - 138
Carbon Tetrachloride	16.0	20.0	80	69 - 135
Chlorobenzene	17.4	20.0	87	80 - 121
Chloroethane	16.4	20.0	82	71 - 130
Chloroform	17.3	20.0	87	78 - 125
Chloromethane	17.1	20.0	86	62 - 133
Cyclohexane	19.3	20.0	97	67 - 127
Dibromochloromethane	17.2	20.0	86	78 - 133
Dichlorodifluoromethane (CFC 12)	14.3	20.0	71	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 4/ 1/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 241040

Lab Control Sample
RQ1102808-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	16.2	20.0	81	75 - 125
Ethylbenzene	17.6	20.0	88	78 - 123
Isopropylbenzene (Cumene)	20.2	20.0	101	73 - 133
Methyl Acetate	18.4	20.0	92	57 - 157
Methyl tert-Butyl Ether	17.7	20.0	88	75 - 126
Methylcyclohexane	20.2	20.0	101	64 - 133
Styrene	17.7	20.0	89	80 - 132
Tetrachloroethene (PCE)	17.5	20.0	88	72 - 131
Toluene	17.6	20.0	88	78 - 122
Trichloroethene (TCE)	16.7	20.0	84	74 - 127
Trichlorofluoromethane (CFC 11)	16.8	20.0	84	71 - 139
Vinyl Chloride	17.9	20.0	89	71 - 136
cis-1,2-Dichloroethene	16.7	20.0	83	78 - 122
cis-1,3-Dichloropropene	16.5	20.0	83	77 - 125
m,p-Xylenes	35.1	40.0	88	79 - 126
n-Butyl Acetate	19.8	20.0	99	54 - 127
o-Xylene	17.5	20.0	88	79 - 126
trans-1,2-Dichloroethene	16.2	20.0	81	75 - 121
trans-1,3-Dichloropropene	16.8	20.0	84	69 - 127

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 4/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 241118

Lab Control Sample
RQ1102865-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.9	20.0	89	72 - 128
1,1,2,2-Tetrachloroethane	17.5	20.0	87	72 - 131
1,1,2-Trichloroethane	18.2	20.0	91	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.7	20.0	89	71 - 134
1,1-Dichloroethane (1,1-DCA)	18.9	20.0	95	76 - 122
1,1-Dichloroethene (1,1-DCE)	17.9	20.0	90	72 - 129
1,2,4-Trichlorobenzene	20.5	20.0	103	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.7	20.0	93	62 - 131
1,2-Dibromoethane	18.5	20.0	93	78 - 125
1,2-Dichlorobenzene	20.1	20.0	100	79 - 124
1,2-Dichloroethane	18.8	20.0	94	78 - 126
1,2-Dichloropropane	19.4	20.0	97	80 - 123
1,3-Dichlorobenzene	19.9	20.0	99	78 - 124
1,4-Dichlorobenzene	20.0	20.0	100	78 - 123
n-Butanol	911	1000	91	70 - 130
2-Butanone (MEK)	17.9	20.0	89	60 - 133
2-Hexanone	17.8	20.0	89	61 - 131
4-Methyl-2-pentanone	18.2	20.0	91	61 - 132
Acetone	17.6	20.0	88	59 - 140
Benzene	19.1	20.0	96	78 - 121
Bromodichloromethane	18.8	20.0	94	80 - 125
Bromoform	20.5	20.0	103	73 - 132
Bromomethane	15.7	20.0	79	57 - 144
Carbon Disulfide	23.3	20.0	117	59 - 138
Carbon Tetrachloride	17.9	20.0	89	69 - 135
Chlorobenzene	19.3	20.0	97	80 - 121
Chloroethane	19.4	20.0	97	71 - 130
Chloroform	18.6	20.0	93	78 - 125
Chloromethane	18.7	20.0	94	62 - 133
Cyclohexane	18.5	20.0	93	67 - 127
Dibromochloromethane	19.9	20.0	99	78 - 133
Dichlorodifluoromethane (CFC 12)	16.8	20.0	84	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 4/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 241118

Lab Control Sample
RQ1102865-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.2	20.0	91	75 - 125
Ethylbenzene	19.9	20.0	100	78 - 123
Isopropylbenzene (Cumene)	22.7	20.0	113	73 - 133
Methyl Acetate	17.4	20.0	87	57 - 157
Methyl tert-Butyl Ether	17.9	20.0	90	75 - 126
Methylcyclohexane	19.7	20.0	98	64 - 133
Styrene	20.1	20.0	100	80 - 132
Tetrachloroethene (PCE)	19.0	20.0	95	72 - 131
Toluene	19.3	20.0	96	78 - 122
Trichloroethene (TCE)	17.9	20.0	90	74 - 127
Trichlorofluoromethane (CFC 11)	18.3	20.0	91	71 - 139
Vinyl Chloride	19.6	20.0	98	71 - 136
cis-1,2-Dichloroethene	18.5	20.0	92	78 - 122
cis-1,3-Dichloropropene	17.6	20.0	88	77 - 125
m,p-Xylenes	42.0	40.0	105	79 - 126
n-Butyl Acetate	19.4	20.0	97	54 - 127
o-Xylene	20.8	20.0	104	79 - 126
trans-1,2-Dichloroethene	19.1	20.0	96	75 - 121
trans-1,3-Dichloropropene	17.9	20.0	90	69 - 127

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 4/ 7/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 241604

	Lab Control Sample RQ1102968-02			Duplicate Lab Control Sample RQ1102968-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	27.0	26.1	104	25.8	26.1	99	55 - 165	5	30
Ethene	24.6	24.3	101	23.5	24.3	97	48 - 163	4	30
Methane	27.4	26.2	104	26.0	26.2	99	61 - 154	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 3/24/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 240058

	Lab Control Sample RQ1102523-02			Duplicate Lab Control Sample RQ1102523-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.05	0.998	105	1.05	0.998	105	70 - 130	<1	30
Acetic Acid	9.54	9.97	96	9.52	9.97	95	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.5	9.98	105	10.1	9.98	102	82 - 118	3	30
Lactic Acid	9.85	10.0	98	9.79	10.0	98	70 - 117	<1	30
Propionic Acid	10.0	9.97	100	10.1	9.97	101	80 - 125	<1	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34/ TR0272
Sample Matrix: Water

Service Request: R1101575
Date Analyzed: 4/ 7/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 240805

	Lab Control Sample RQ1102737-02			Duplicate Lab Control Sample RQ1102737-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.05	0.998	105	1.08	0.998	108	70 - 130	3	30
Acetic Acid	9.20	9.97	92	9.36	9.97	94	70 - 135	2	30
Butanoic Acid (Butyric Acid)	9.19	9.98	92	9.15	9.98	92	82 - 118	<1	30
Lactic Acid	9.26	10.0	92	9.58	10.0	96	70 - 117	3	30
Propionic Acid	9.90	9.97	99	9.95	9.97	100	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

PAGE 1 OF 2

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: [signature] for Joe Dettloff

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)		REMARKS
					Analysis Requested						
LC34-RW0007-038.5-20110322	3/22/2011	1029	-001	GW	4	1	1	1	1		
LC34-IW0002I-027.5-20110322	3/22/2011	1434	-002	GW	1	1					
LC34-IW0002D-037.5-20110322	3/22/2011	1405	-003	GW	1	1					
LC34-BW0001C-038.5-20110322	3/22/2011	1501	-004	GW	1	1					
LC34-BW0002C-038.5-20110322	3/22/2011	1253	-005	GW	1	1					
LC34-BW0003C-038.5-20110322	3/22/2011	1621	-006	GW	1	1					
LC34-RW0008-052.0-20110322	3/22/2011	1121	-007	GW	4	1	1	1	1		
LC34-IW0002D1-052.5-20110322	3/22/2011	1330	-008	GW	1	1					
LC34-BW0001E-052.5-20110322	3/22/2011	1525	-009	GW	1	1					
LC34-BW0003E-052.5-20110322	3/22/2011	1552	010	GW	1	1					

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1101575
GeoSyntec Consultants
ESTCP PED LC34

Invoice Information

P.O. # _____

Bill to: TR0272

RELINQUISHED BY:

Signature: [signature]

Printed Name: Rebecca Chapman

Firm: GEOSYNTEC

Date/Time: 3/23/11 0900

RECEIVED BY:

Signature: [signature]

Printed Name: Gregory LaForce

Firm: CAS

Date/Time: 3/24/11 0931

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

PAGE 2 OF 2

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: [signature] for Joe Dunlap

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate					REMARKS
						Analysis Requested					
LC34-QC0001-000.0-20110322	3/22/2011	~~1400~~ N/A RA	-011	GW	1	1					

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

-012 LC34-TB R1101575
20110322-01 added 3/25/11

Invoice Information

P.O. # _____

Bill to: TR0272

RELINQUISHED BY:

Signature: [signature]

Printed Name: Joe Bartlett

Firm: Geosyntec

Date/Time: 3/22/11 1740

RECEIVED BY:

Signature: [signature]

Printed Name: Gregory LaForce

Firm: CAS

Date/Time: 3/24/11 0931

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1101575

Cooler received on 3/24/11 by: KD **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC), CLIENT				
7.	Temperature of cooler(s) upon receipt:	9°		6°		
	Is the temperature within 0° - 6° C?:	Yes	Yes	(Yes)	Yes	Yes
	If No, Explain Below	(No)	No	No	No	No

Date/Time Temperatures Taken: 3/24/11 0938

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: Samples OK KD 3/24/11

PC Secondary Review: KB 3/24/11

Cooler Breakdown: Date: 3/24/11 Time: 1140 by: BD

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies:

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4			WC10300A	2/12
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 0-235-00252, 071210-288 BD 3/24/11

Other Comments:

H_3PO_4 WC9211157 exp: 11/14

PC Secondary Review: KB 4/15/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	REMARKS
LC34-RW0007-038.5-20110328	3/28/2011	926	-013	GW	7	1	1	1	1	1	1	1	1	
LC34-IW0002I-027.5-20110329	3/29/2011	1213	-014	GW	1	1								
LC34-IW0002D-037.5-20110328	3/28/2011	1122	-015	GW	1	1								
LC34-BW0001C-038.5-20110329	3/29/2011	1114	-016	GW	1	1								
LC34-BW0002C-038.5-20110329	3/29/2011	1749, 951	-017	GW	1	1								
LC34-BW0003C-038.5-20110329	3/29/2011	1016	-018	GW	1	1								
LC34-RW0008-052.0-20110328	3/28/2011	1019	-019	GW	7	1	1	1	1	1	1	1	1	
LC34-IW0002D1-052.5-20110328	3/28/2011	1057	-020	GW	1	1								
LC34-BW0001E-052.5-20110329	3/29/2011	1149	-021	GW	1	1								
LC34-BW0003E-052.5-20110329	3/29/2011	1049	-022	GW	1	1								

URNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1101575
GeoSyntec Consultants
ESTCP PED LC34

RELINQUISHED BY:

Signature:

Printed Name: David Szemore

Firm: GeoSyntec

Date/Time: 3/29/11 1700

RECEIVED BY:

Signature:

Printed Name: FED EX

Firm:

Date/Time: 3-29-11 1700

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LaFont

Firm: CAS

Date/Time: 3/30/11 1159

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	REMARKS
LC34-QC0002-000.0-20110328	3/28/2011	NA	-023	GW	1	1								
~~LC34-EF0001-000.0-20110329~~	~~3/29/2011~~		DNS	GW	1	1								
~~LC34-EF0002-000.0-20110329~~	3/29/2011		DNS	GW	1	1								
LC34-TB-20110329	3/29/2011	NA	-024	GW	1	1								
				GW	0									
				GW	0									
				GW	0									
				GW	0									
				GW	0									
				GW	0									

URNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1101575
GeoSyntec Consultants
ESTCP PED LC34

RELINQUISHED BY:

Signature:

Printed Name: David Sizemore

Firm: GeoSyntec

Date/Time: 3/29/11 1700

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time: 3/29/11 1700

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LaTorre

Firm: CAS

Date/Time: 3/30/11 1159

Cooler Receipt And Preservati

R1101575
GeoSyntec Consultants
ESTCP PED LC34

Project/Client Geosyntec Folder Number

Cooler received on 3/30/11 by: KB **COURIER:** CAS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO N/A / Trip Blank VOA
5.	Were **Ice** or **Ice packs** present?	YES	NO
6.	Where did the bottles originate?		CAS/ROC CLIENT

7. Temperature of cooler(s) upon receipt:	3°				
Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 3/30/11 1204

Thermometer ID: IR GUN#3 IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples:

PC Secondary Review: KB 3/30/11

Cooler Breakdown: Date: 3/30/11 Time: 1336 by: DW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO

4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-	WC92239C	7/11
	Zn Aceta	-	-		
	HCl	*	*	4110020	1/12

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 0-235-003, 0-236-002, 071210-2BB, 070510-2AA

Other Comments:

PC Secondary Review: KB 4/15/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1 Mustard Street, Suite 250 | Rochester, NY 14609 | 585-288-5380 | 585-288-8475 fax | www.caslab.com

May 06, 2011 Service Request No: R1101876

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on April 8, 2011. For your reference, these analyses have been assigned our service request number **R1101876**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1101575
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	4/8/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Sixteen (16) water samples including one (1) Trip Blank were collected by the client on 4/1,7/11 and were received for analysis at Columbia Analytical Services on 4/8/11 via a national courier. The samples were received at a cooler temperature of 4°C, within the 0-6°C guidelines.

Volatile Organic Compounds

Sixteen (16) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except the following: the minimum response factor for Carbon Tetrachloride was not met in the ICAL/Daily CCV from 4/12/11.The data has been considered reportable since the MRL has been verified by the low standard in the calibration.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

Samples were analyzed within 7 days from collection, the holding time for unpreserved vials which were to be used for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. It was found that samples LC34-EF0001-000.0-20110401 and LC34-EF0002-000.0-20110401 (CAS Submission #R1101876-011 and -012 respectively) were collected in preserved vials. These 2 samples were collected on 4/1/11 and received on 4/8/11and were run within the 14 day holding time for preserved vials (pH <2). The Vials themselves were also checked and found to be labeled as preserved. The preservative would inhibit the N-Butyl Acetate value for these samples.

The Laboratory Method Blanks were free from contamination except for low level hits between the MRL and MDL for the compound 1,2,4-Trichlorobenzene on the 4/12/11 and 4/13/11 analytical runs.

No other analytical or QC problems were encountered.

Approved by Karen Burdick **Date** 5/6/11

HPLC Methodology

Two (2) water samples were analyzed for Organic Acids by HPLC.

All Initial and Continuing Calibration Criteria were met.

Batch QC is included in the report. All LCS and LCSD recoveries were within QC acceptance limits. All RPD calculations were acceptable.

All samples were analyzed within the proper holding time for the method.

The Laboratory Method Blanks were free from contamination.

No problems were encountered during the analysis of these samples.

Inorganic Parameters

Two (2) water samples were analyzed for TOC by method 9060 and Bromide and Iodide by IC method 300.0. The TOC Quad average has been reported.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination.

Approved by Karen Burchett **Date** 5/6/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1101876

Lab ID	Client ID
R1101876-001	LC34-RW0007-038.5-20110407
R1101876-002	LC34-IW0002I-027.5-20110407
R1101876-003	LC34-IW0002D-037.5-20110407
R1101876-004	LC34-BW0001C-038.5-20110407
R1101876-005	LC34-BW0002C-038.5-20110407
R1101876-006	LC34-BW0003C-038.5-20110407
R1101876-007	LC34-RW0008-052.0-20110407
R1101876-008	LC34-IW0002D1-052.5-20110407
R1101876-009	LC34-BW0001E-052.5-20110407
R1101876-010	LC34-BW0003E-052.5-20110407
R1101876-011	LC34-EF0001-000.0-20110401
R1101876-012	LC34-EF0002-000.0-20110401
R1101876-013	LC34-EF0003-000.0-20110407
R1101876-014	LC34-EF0004-000.0-20110407
R1101876-015	LC34-TB-20110407
R1101876-016	LC34-FD-20110407-01

Columbia Analytical Services

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0953
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-RW0007-038.5-20110407		
Lab Code:	R1101876-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.3**		mg/L	1.0	10	NA	4/11/11 15:50	
Carbon, Total Organic (TOC), Average	9060	**5.3**		mg/L	1.0	1	NA	4/17/11 13:16	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 14:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0953
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-RW0007-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		1300	100	250	NA	4/13/11 03:31		242051	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	4/13/11 03:31		242051	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/13/11 03:31		242051	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/13/11 03:31		242051	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/13/11 03:31		242051	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/13/11 03:31		242051	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/13/11 03:31		242051	
n-Butanol	13000	U	13000	1700	250	NA	4/13/11 03:31		242051	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/13/11 03:31		242051	
2-Hexanone	2500	U	2500	100	250	NA	4/13/11 03:31		242051	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/13/11 03:31		242051	
Acetone	5000	U	5000	400	250	NA	4/13/11 03:31		242051	
Benzene	1300	U	1300	78	250	NA	4/13/11 03:31		242051	
Bromodichloromethane	1300	U	1300	110	250	NA	4/13/11 03:31		242051	
Bromoform	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Bromomethane	1300	U	1300	100	250	NA	4/13/11 03:31		242051	
Carbon Disulfide	2500	U	2500	88	250	NA	4/13/11 03:31		242051	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/13/11 03:31		242051	
Chlorobenzene	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Chloroethane	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Chloroform	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Chloromethane	1300	U	1300	120	250	NA	4/13/11 03:31		242051	
Cyclohexane	2500	U	2500	75	250	NA	4/13/11 03:31		242051	
Dibromochloromethane	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/13/11 03:31		242051	
Dichloromethane	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Ethylbenzene	1300	U	1300	110	250	NA	4/13/11 03:31		242051	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/13/11 03:31		242051	
Methyl Acetate	2500	U	2500	170	250	NA	4/13/11 03:31		242051	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0953
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-RW0007-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Methylcyclohexane	2500	U	2500	75	250	NA	4/13/11 03:31		242051	
Styrene	1300	U	1300	88	250	NA	4/13/11 03:31		242051	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/13/11 03:31		242051	
Toluene	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Trichloroethene (TCE)	**14000**		1300	75	250	NA	4/13/11 03:31		242051	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
Vinyl Chloride	**1000**	J	1300	75	250	NA	4/13/11 03:31		242051	
cis-1,2-Dichloroethene	**33000**		1300	75	250	NA	4/13/11 03:31		242051	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
m,p-Xylenes	1300	U	1300	210	250	NA	4/13/11 03:31		242051	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/13/11 03:31		242051	
o-Xylene	1300	U	1300	100	250	NA	4/13/11 03:31		242051	
trans-1,2-Dichloroethene	**290**	J	1300	75	250	NA	4/13/11 03:31		242051	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/13/11 03:31		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	4/13/11 03:31	
Dibromofluoromethane	104	89-119	4/13/11 03:31	
Toluene-d8	109	87-121	4/13/11 03:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0953
Sample Matrix:	Water	**Date Received:**	4/ 8/11
		Date Analyzed:	4/11/11 14:40
Sample Name:	LC34-RW0007-038.5-20110407	**Units:**	mg/L
Lab Code:	R1101876-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	241933
Data File Name:	J:\ACQUDATA\HPLC05\DATA\041111\X0005667.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**24**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1127
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-IW0002I-027.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	**77000**		2500	200	500	NA	4/13/11 04:01		242051	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	4/13/11 04:01		242051	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	4/13/11 04:01		242051	
1,2-Dibromoethane	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	4/13/11 04:01		242051	
1,2-Dichloroethane	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
1,2-Dichloropropane	2500	U	2500	330	500	NA	4/13/11 04:01		242051	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	4/13/11 04:01		242051	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	4/13/11 04:01		242051	
n-Butanol	25000	U	25000	3400	500	NA	4/13/11 04:01		242051	
2-Butanone (MEK)	5000	U	5000	500	500	NA	4/13/11 04:01		242051	
2-Hexanone	5000	U	5000	200	500	NA	4/13/11 04:01		242051	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	4/13/11 04:01		242051	
Acetone	10000	U	10000	800	500	NA	4/13/11 04:01		242051	
Benzene	2500	U	2500	160	500	NA	4/13/11 04:01		242051	
Bromodichloromethane	2500	U	2500	210	500	NA	4/13/11 04:01		242051	
Bromoform	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Bromomethane	2500	U	2500	200	500	NA	4/13/11 04:01		242051	
Carbon Disulfide	5000	U	5000	180	500	NA	4/13/11 04:01		242051	
Carbon Tetrachloride	2500	U	2500	180	500	NA	4/13/11 04:01		242051	
Chlorobenzene	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Chloroethane	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Chloroform	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Chloromethane	2500	U	2500	230	500	NA	4/13/11 04:01		242051	
Cyclohexane	5000	U	5000	150	500	NA	4/13/11 04:01		242051	
Dibromochloromethane	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	4/13/11 04:01		242051	
Dichloromethane	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Ethylbenzene	2500	U	2500	210	500	NA	4/13/11 04:01		242051	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	4/13/11 04:01		242051	
Methyl Acetate	5000	U	5000	330	500	NA	4/13/11 04:01		242051	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1127
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-IW0002I-027.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Methylcyclohexane	5000	U	5000	150	500	NA	4/13/11 04:01		242051	
Styrene	2500	U	2500	180	500	NA	4/13/11 04:01		242051	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	4/13/11 04:01		242051	
Toluene	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Trichloroethene (TCE)	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
Vinyl Chloride	**1100**	J	2500	150	500	NA	4/13/11 04:01		242051	
cis-1,2-Dichloroethene	**23000**		2500	150	500	NA	4/13/11 04:01		242051	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
m,p-Xylenes	2500	U	2500	410	500	NA	4/13/11 04:01		242051	
n-Butyl Acetate	2500	U	2500	150	500	NA	4/13/11 04:01		242051	
o-Xylene	2500	U	2500	200	500	NA	4/13/11 04:01		242051	
trans-1,2-Dichloroethene	**510**	J	2500	150	500	NA	4/13/11 04:01		242051	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/13/11 04:01		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	4/13/11 04:01	
Dibromofluoromethane	105	89-119	4/13/11 04:01	
Toluene-d8	110	87-121	4/13/11 04:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1052
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-IW0002D-037.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	**6500**		1300	100	250	NA	4/13/11 04:32		242051	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	4/13/11 04:32		242051	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/13/11 04:32		242051	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/13/11 04:32		242051	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/13/11 04:32		242051	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/13/11 04:32		242051	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/13/11 04:32		242051	
n-Butanol	13000	U	13000	1700	250	NA	4/13/11 04:32		242051	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/13/11 04:32		242051	
2-Hexanone	2500	U	2500	100	250	NA	4/13/11 04:32		242051	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/13/11 04:32		242051	
Acetone	5000	U	5000	400	250	NA	4/13/11 04:32		242051	
Benzene	1300	U	1300	78	250	NA	4/13/11 04:32		242051	
Bromodichloromethane	1300	U	1300	110	250	NA	4/13/11 04:32		242051	
Bromoform	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Bromomethane	1300	U	1300	100	250	NA	4/13/11 04:32		242051	
Carbon Disulfide	2500	U	2500	88	250	NA	4/13/11 04:32		242051	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/13/11 04:32		242051	
Chlorobenzene	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Chloroethane	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Chloroform	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Chloromethane	1300	U	1300	120	250	NA	4/13/11 04:32		242051	
Cyclohexane	2500	U	2500	75	250	NA	4/13/11 04:32		242051	
Dibromochloromethane	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/13/11 04:32		242051	
Dichloromethane	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Ethylbenzene	1300	U	1300	110	250	NA	4/13/11 04:32		242051	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/13/11 04:32		242051	
Methyl Acetate	2500	U	2500	170	250	NA	4/13/11 04:32		242051	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1052
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-IW0002D-037.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Methylcyclohexane	2500	U	2500	75	250	NA	4/13/11 04:32		242051	
Styrene	1300	U	1300	88	250	NA	4/13/11 04:32		242051	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/13/11 04:32		242051	
Toluene	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Trichloroethene (TCE)	**1100**	J	1300	75	250	NA	4/13/11 04:32		242051	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
Vinyl Chloride	**2800**		1300	75	250	NA	4/13/11 04:32		242051	
cis-1,2-Dichloroethene	**28000**		1300	75	250	NA	4/13/11 04:32		242051	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
m,p-Xylenes	1300	U	1300	210	250	NA	4/13/11 04:32		242051	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/13/11 04:32		242051	
o-Xylene	1300	U	1300	100	250	NA	4/13/11 04:32		242051	
trans-1,2-Dichloroethene	**360**	J	1300	75	250	NA	4/13/11 04:32		242051	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/13/11 04:32		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	4/13/11 04:32	
Dibromofluoromethane	106	89-119	4/13/11 04:32	
Toluene-d8	110	87-121	4/13/11 04:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1312
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0001C-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	**55000**	D	2500	200	500	NA	4/13/11 17:18		242280	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
1,1-Dichloroethene (1,1-DCE)	**140**	J	1300	93	250	NA	4/13/11 05:02		242051	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/13/11 05:02		242051	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/13/11 05:02		242051	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/13/11 05:02		242051	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/13/11 05:02		242051	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/13/11 05:02		242051	
n-Butanol	13000	U	13000	1700	250	NA	4/13/11 05:02		242051	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/13/11 05:02		242051	
2-Hexanone	2500	U	2500	100	250	NA	4/13/11 05:02		242051	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/13/11 05:02		242051	
Acetone	5000	U	5000	400	250	NA	4/13/11 05:02		242051	
Benzene	1300	U	1300	78	250	NA	4/13/11 05:02		242051	
Bromodichloromethane	1300	U	1300	110	250	NA	4/13/11 05:02		242051	
Bromoform	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Bromomethane	1300	U	1300	100	250	NA	4/13/11 05:02		242051	
Carbon Disulfide	2500	U	2500	88	250	NA	4/13/11 05:02		242051	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/13/11 05:02		242051	
Chlorobenzene	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Chloroethane	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Chloroform	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Chloromethane	1300	U	1300	120	250	NA	4/13/11 05:02		242051	
Cyclohexane	2500	U	2500	75	250	NA	4/13/11 05:02		242051	
Dibromochloromethane	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/13/11 05:02		242051	
Dichloromethane	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Ethylbenzene	1300	U	1300	110	250	NA	4/13/11 05:02		242051	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/13/11 05:02		242051	
Methyl Acetate	2500	U	2500	170	250	NA	4/13/11 05:02		242051	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1312
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0001C-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Methylcyclohexane	2500	U	2500	75	250	NA	4/13/11 05:02		242051	
Styrene	1300	U	1300	88	250	NA	4/13/11 05:02		242051	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/13/11 05:02		242051	
Toluene	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Trichloroethene (TCE)	**54000**	D	2500	150	500	NA	4/13/11 17:18		242280	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
Vinyl Chloride	**570**	J	1300	75	250	NA	4/13/11 05:02		242051	
cis-1,2-Dichloroethene	**29000**		1300	75	250	NA	4/13/11 05:02		242051	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
m,p-Xylenes	1300	U	1300	210	250	NA	4/13/11 05:02		242051	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/13/11 05:02		242051	
o-Xylene	1300	U	1300	100	250	NA	4/13/11 05:02		242051	
trans-1,2-Dichloroethene	**280**	J	1300	75	250	NA	4/13/11 05:02		242051	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/13/11 05:02		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 05:02	
Dibromofluoromethane	105	89-119	4/13/11 05:02	
Toluene-d8	109	87-121	4/13/11 05:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1152
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0002C-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	200	500	NA	4/13/11 17:48		242280	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	4/13/11 17:48		242280	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	4/13/11 17:48		242280	
1,2-Dibromoethane	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	4/13/11 17:48		242280	
1,2-Dichloroethane	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
1,2-Dichloropropane	2500	U	2500	330	500	NA	4/13/11 17:48		242280	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	4/13/11 17:48		242280	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	4/13/11 17:48		242280	
n-Butanol	25000	U	25000	3400	500	NA	4/13/11 17:48		242280	
2-Butanone (MEK)	5000	U	5000	500	500	NA	4/13/11 17:48		242280	
2-Hexanone	5000	U	5000	200	500	NA	4/13/11 17:48		242280	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	4/13/11 17:48		242280	
Acetone	10000	U	10000	800	500	NA	4/13/11 17:48		242280	
Benzene	2500	U	2500	160	500	NA	4/13/11 17:48		242280	
Bromodichloromethane	2500	U	2500	210	500	NA	4/13/11 17:48		242280	
Bromoform	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Bromomethane	2500	U	2500	200	500	NA	4/13/11 17:48		242280	
Carbon Disulfide	5000	U	5000	180	500	NA	4/13/11 17:48		242280	
Carbon Tetrachloride	2500	U	2500	180	500	NA	4/13/11 17:48		242280	
Chlorobenzene	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Chloroethane	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Chloroform	**670**	J	2500	150	500	NA	4/13/11 17:48		242280	
Chloromethane	2500	U	2500	230	500	NA	4/13/11 17:48		242280	
Cyclohexane	5000	U	5000	150	500	NA	4/13/11 17:48		242280	
Dibromochloromethane	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	4/13/11 17:48		242280	
Dichloromethane	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Ethylbenzene	2500	U	2500	210	500	NA	4/13/11 17:48		242280	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	4/13/11 17:48		242280	
Methyl Acetate	5000	U	5000	330	500	NA	4/13/11 17:48		242280	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1152
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0002C-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Methylcyclohexane	5000	U	5000	150	500	NA	4/13/11 17:48		242280	
Styrene	2500	U	2500	180	500	NA	4/13/11 17:48		242280	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	4/13/11 17:48		242280	
Toluene	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Trichloroethene (TCE)	**3000**		2500	150	500	NA	4/13/11 17:48		242280	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
Vinyl Chloride	**2300**	J	2500	150	500	NA	4/13/11 17:48		242280	
cis-1,2-Dichloroethene	**79000**		2500	150	500	NA	4/13/11 17:48		242280	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
m,p-Xylenes	2500	U	2500	410	500	NA	4/13/11 17:48		242280	
n-Butyl Acetate	2500	U	2500	150	500	NA	4/13/11 17:48		242280	
o-Xylene	2500	U	2500	200	500	NA	4/13/11 17:48		242280	
trans-1,2-Dichloroethene	**450**	J	2500	150	500	NA	4/13/11 17:48		242280	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/13/11 17:48		242280	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	4/13/11 17:48	
Dibromofluoromethane	106	89-119	4/13/11 17:48	
Toluene-d8	110	87-121	4/13/11 17:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1404
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0003C-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	15	50	NA	4/13/11 18:18		242280	
1,1,2,2-Tetrachloroethane	250	U	250	15	50	NA	4/13/11 18:18		242280	
1,1,2-Trichloroethane	250	U	250	15	50	NA	4/13/11 18:18		242280	
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	20	50	NA	4/13/11 18:18		242280	
1,1-Dichloroethane (1,1-DCA)	250	U	250	15	50	NA	4/13/11 18:18		242280	
1,1-Dichloroethene (1,1-DCE)	250	U	250	19	50	NA	4/13/11 18:18		242280	
1,2,4-Trichlorobenzene	250	U	250	15	50	NA	4/13/11 18:18		242280	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	22	50	NA	4/13/11 18:18		242280	
1,2-Dibromoethane	250	U	250	15	50	NA	4/13/11 18:18		242280	
1,2-Dichlorobenzene	250	U	250	20	50	NA	4/13/11 18:18		242280	
1,2-Dichloroethane	250	U	250	15	50	NA	4/13/11 18:18		242280	
1,2-Dichloropropane	250	U	250	33	50	NA	4/13/11 18:18		242280	
1,3-Dichlorobenzene	250	U	250	18	50	NA	4/13/11 18:18		242280	
1,4-Dichlorobenzene	250	U	250	17	50	NA	4/13/11 18:18		242280	
n-Butanol	2500	U	2500	340	50	NA	4/13/11 18:18		242280	
2-Butanone (MEK)	500	U	500	50	50	NA	4/13/11 18:18		242280	
2-Hexanone	500	U	500	20	50	NA	4/13/11 18:18		242280	
4-Methyl-2-pentanone	500	U	500	17	50	NA	4/13/11 18:18		242280	
Acetone	1000	U	1000	80	50	NA	4/13/11 18:18		242280	
Benzene	250	U	250	16	50	NA	4/13/11 18:18		242280	
Bromodichloromethane	250	U	250	21	50	NA	4/13/11 18:18		242280	
Bromoform	250	U	250	15	50	NA	4/13/11 18:18		242280	
Bromomethane	250	U	250	20	50	NA	4/13/11 18:18		242280	
Carbon Disulfide	500	U	500	18	50	NA	4/13/11 18:18		242280	
Carbon Tetrachloride	250	U	250	18	50	NA	4/13/11 18:18		242280	
Chlorobenzene	250	U	250	15	50	NA	4/13/11 18:18		242280	
Chloroethane	250	U	250	15	50	NA	4/13/11 18:18		242280	
Chloroform	250	U	250	15	50	NA	4/13/11 18:18		242280	
Chloromethane	250	U	250	23	50	NA	4/13/11 18:18		242280	
Cyclohexane	500	U	500	15	50	NA	4/13/11 18:18		242280	
Dibromochloromethane	250	U	250	15	50	NA	4/13/11 18:18		242280	
Dichlorodifluoromethane (CFC 12)	250	U	250	37	50	NA	4/13/11 18:18		242280	
Dichloromethane	250	U	250	15	50	NA	4/13/11 18:18		242280	
Ethylbenzene	250	U	250	21	50	NA	4/13/11 18:18		242280	
Isopropylbenzene (Cumene)	250	U	250	17	50	NA	4/13/11 18:18		242280	
Methyl Acetate	500	U	500	33	50	NA	4/13/11 18:18		242280	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1404
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0003C-038.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	15	50	NA	4/13/11 18:18		242280	
Methylcyclohexane	500	U	500	15	50	NA	4/13/11 18:18		242280	
Styrene	250	U	250	18	50	NA	4/13/11 18:18		242280	
Tetrachloroethene (PCE)	250	U	250	21	50	NA	4/13/11 18:18		242280	
Toluene	250	U	250	15	50	NA	4/13/11 18:18		242280	
Trichloroethene (TCE)	**32**	J	250	15	50	NA	4/13/11 18:18		242280	
Trichlorofluoromethane (CFC 11)	250	U	250	15	50	NA	4/13/11 18:18		242280	
Vinyl Chloride	**4700**		250	15	50	NA	4/13/11 18:18		242280	
cis-1,2-Dichloroethene	**9800**		250	15	50	NA	4/13/11 18:18		242280	
cis-1,3-Dichloropropene	250	U	250	15	50	NA	4/13/11 18:18		242280	
m,p-Xylenes	250	U	250	41	50	NA	4/13/11 18:18		242280	
n-Butyl Acetate	250	U	250	15	50	NA	4/13/11 18:18		242280	
o-Xylene	250	U	250	20	50	NA	4/13/11 18:18		242280	
trans-1,2-Dichloroethene	**150**	J	250	15	50	NA	4/13/11 18:18		242280	
trans-1,3-Dichloropropene	250	U	250	15	50	NA	4/13/11 18:18		242280	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 18:18	
Dibromofluoromethane	104	89-119	4/13/11 18:18	
Toluene-d8	109	87-121	4/13/11 18:18	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0916
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-RW0008-052.0-20110407		
Lab Code:	R1101876-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.4**		mg/L	1.0	10	NA	4/11/11 16:03	
Carbon, Total Organic (TOC), Average	9060	**3.5**		mg/L	1.0	1	NA	4/17/11 13:52	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 14:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0916
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-RW0008-052.0-20110407	**Units:**	µg/L
Lab Code:	R1101876-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
1,1,2,2-Tetrachloroethane	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
1,1,2-Trichloroethane	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
1,1,2-Trichloro-1,2,2-trifluoroethane	140		25	2.0	5	NA	4/13/11 18:49		242280	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
1,1-Dichloroethene (1,1-DCE)	25	U	25	1.9	5	NA	4/13/11 18:49		242280	
1,2,4-Trichlorobenzene	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	2.2	5	NA	4/13/11 18:49		242280	
1,2-Dibromoethane	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
1,2-Dichlorobenzene	25	U	25	2.0	5	NA	4/13/11 18:49		242280	
1,2-Dichloroethane	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
1,2-Dichloropropane	25	U	25	3.4	5	NA	4/13/11 18:49		242280	
1,3-Dichlorobenzene	25	U	25	1.8	5	NA	4/13/11 18:49		242280	
1,4-Dichlorobenzene	25	U	25	1.8	5	NA	4/13/11 18:49		242280	
n-Butanol	250	U	250	34	5	NA	4/13/11 18:49		242280	
2-Butanone (MEK)	50	U	50	5.0	5	NA	4/13/11 18:49		242280	
2-Hexanone	50	U	50	2.0	5	NA	4/13/11 18:49		242280	
4-Methyl-2-pentanone	50	U	50	1.8	5	NA	4/13/11 18:49		242280	
Acetone	100	U	100	8.0	5	NA	4/13/11 18:49		242280	
Benzene	25	U	25	1.6	5	NA	4/13/11 18:49		242280	
Bromodichloromethane	25	U	25	2.1	5	NA	4/13/11 18:49		242280	
Bromoform	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Bromomethane	25	U	25	2.0	5	NA	4/13/11 18:49		242280	
Carbon Disulfide	50	U	50	1.8	5	NA	4/13/11 18:49		242280	
Carbon Tetrachloride	25	U	25	1.8	5	NA	4/13/11 18:49		242280	
Chlorobenzene	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Chloroethane	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Chloroform	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Chloromethane	25	U	25	2.4	5	NA	4/13/11 18:49		242280	
Cyclohexane	50	U	50	1.5	5	NA	4/13/11 18:49		242280	
Dibromochloromethane	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Dichlorodifluoromethane (CFC 12)	25	U	25	3.7	5	NA	4/13/11 18:49		242280	
Dichloromethane	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Ethylbenzene	25	U	25	2.1	5	NA	4/13/11 18:49		242280	
Isopropylbenzene (Cumene)	25	U	25	1.8	5	NA	4/13/11 18:49		242280	
Methyl Acetate	50	U	50	3.4	5	NA	4/13/11 18:49		242280	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0916
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-RW0008-052.0-20110407	**Units:**	µg/L
Lab Code:	R1101876-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Methylcyclohexane	50	U	50	1.5	5	NA	4/13/11 18:49		242280	
Styrene	25	U	25	1.8	5	NA	4/13/11 18:49		242280	
Tetrachloroethene (PCE)	25	U	25	2.1	5	NA	4/13/11 18:49		242280	
Toluene	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Trichloroethene (TCE)	**790**		25	1.5	5	NA	4/13/11 18:49		242280	
Trichlorofluoromethane (CFC 11)	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
Vinyl Chloride	**13**	J	25	1.5	5	NA	4/13/11 18:49		242280	
cis-1,2-Dichloroethene	**360**		25	1.5	5	NA	4/13/11 18:49		242280	
cis-1,3-Dichloropropene	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
m,p-Xylenes	25	U	25	4.1	5	NA	4/13/11 18:49		242280	
n-Butyl Acetate	25	U	25	1.5	5	NA	4/13/11 18:49		242280	
o-Xylene	25	U	25	2.0	5	NA	4/13/11 18:49		242280	
trans-1,2-Dichloroethene	**1.9**	J	25	1.5	5	NA	4/13/11 18:49		242280	
trans-1,3-Dichloropropene	25	U	25	1.5	5	NA	4/13/11 18:49		242280	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 18:49	
Dibromofluoromethane	106	89-119	4/13/11 18:49	
Toluene-d8	109	87-121	4/13/11 18:49	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 0916
Sample Matrix:	Water	**Date Received:**	4/ 8/11
		Date Analyzed:	4/11/11 21:52
Sample Name:	LC34-RW0008-052.0-20110407	**Units:**	mg/L
Lab Code:	R1101876-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	241933
Data File Name:	J:\ACQUDATA\HPLC05\DATA\041111\X0005674.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1029
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-IW0002D1-052.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
1,1,2,2-Tetrachloroethane	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
1,1,2-Trichloroethane	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.2	J	13	1.0	2.5	NA	4/13/11 07:02		242051	
1,1-Dichloroethane (1,1-DCA)	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
1,1-Dichloroethene (1,1-DCE)	13	U	13	0.93	2.5	NA	4/13/11 07:02		242051	
1,2,4-Trichlorobenzene	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.1	2.5	NA	4/13/11 07:02		242051	
1,2-Dibromoethane	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
1,2-Dichlorobenzene	13	U	13	1.0	2.5	NA	4/13/11 07:02		242051	
1,2-Dichloroethane	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
1,2-Dichloropropane	13	U	13	1.7	2.5	NA	4/13/11 07:02		242051	
1,3-Dichlorobenzene	13	U	13	0.90	2.5	NA	4/13/11 07:02		242051	
1,4-Dichlorobenzene	13	U	13	0.86	2.5	NA	4/13/11 07:02		242051	
n-Butanol	130	U	130	17	2.5	NA	4/13/11 07:02		242051	
2-Butanone (MEK)	25	U	25	2.5	2.5	NA	4/13/11 07:02		242051	
2-Hexanone	25	U	25	1.0	2.5	NA	4/13/11 07:02		242051	
4-Methyl-2-pentanone	25	U	25	0.86	2.5	NA	4/13/11 07:02		242051	
Acetone	50	U	50	4.0	2.5	NA	4/13/11 07:02		242051	
Benzene	13	U	13	0.78	2.5	NA	4/13/11 07:02		242051	
Bromodichloromethane	13	U	13	1.1	2.5	NA	4/13/11 07:02		242051	
Bromoform	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Bromomethane	13	U	13	1.0	2.5	NA	4/13/11 07:02		242051	
Carbon Disulfide	25	U	25	0.88	2.5	NA	4/13/11 07:02		242051	
Carbon Tetrachloride	13	U	13	0.90	2.5	NA	4/13/11 07:02		242051	
Chlorobenzene	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Chloroethane	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Chloroform	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Chloromethane	13	U	13	1.2	2.5	NA	4/13/11 07:02		242051	
Cyclohexane	25	U	25	0.75	2.5	NA	4/13/11 07:02		242051	
Dibromochloromethane	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Dichlorodifluoromethane (CFC 12)	13	U	13	1.9	2.5	NA	4/13/11 07:02		242051	
Dichloromethane	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Ethylbenzene	13	U	13	1.1	2.5	NA	4/13/11 07:02		242051	
Isopropylbenzene (Cumene)	13	U	13	0.86	2.5	NA	4/13/11 07:02		242051	
Methyl Acetate	25	U	25	1.7	2.5	NA	4/13/11 07:02		242051	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1029
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-IW0002D1-052.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Methylcyclohexane	25	U	25	0.75	2.5	NA	4/13/11 07:02		242051	
Styrene	13	U	13	0.88	2.5	NA	4/13/11 07:02		242051	
Tetrachloroethene (PCE)	13	U	13	1.1	2.5	NA	4/13/11 07:02		242051	
Toluene	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Trichloroethene (TCE)	**59**		13	0.75	2.5	NA	4/13/11 07:02		242051	
Trichlorofluoromethane (CFC 11)	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
Vinyl Chloride	**3.5**	J	13	0.75	2.5	NA	4/13/11 07:02		242051	
cis-1,2-Dichloroethene	**770**	D	25	1.5	5	NA	4/13/11 19:19		242280	
cis-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
m,p-Xylenes	13	U	13	2.1	2.5	NA	4/13/11 07:02		242051	
n-Butyl Acetate	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	
o-Xylene	13	U	13	1.0	2.5	NA	4/13/11 07:02		242051	
trans-1,2-Dichloroethene	**5.7**	J	13	0.75	2.5	NA	4/13/11 07:02		242051	
trans-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/13/11 07:02		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/13/11 07:02	
Dibromofluoromethane	106	89-119	4/13/11 07:02	
Toluene-d8	109	87-121	4/13/11 07:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1336
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0001E-052.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
1,1,2,2-Tetrachloroethane	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
1,1,2-Trichloroethane	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1.0**	J	13	1.0	2.5	NA	4/13/11 19:49		242280	
1,1-Dichloroethane (1,1-DCA)	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
1,1-Dichloroethene (1,1-DCE)	13	U	13	0.93	2.5	NA	4/13/11 19:49		242280	
1,2,4-Trichlorobenzene	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.1	2.5	NA	4/13/11 19:49		242280	
1,2-Dibromoethane	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
1,2-Dichlorobenzene	13	U	13	1.0	2.5	NA	4/13/11 19:49		242280	
1,2-Dichloroethane	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
1,2-Dichloropropane	13	U	13	1.7	2.5	NA	4/13/11 19:49		242280	
1,3-Dichlorobenzene	13	U	13	0.90	2.5	NA	4/13/11 19:49		242280	
1,4-Dichlorobenzene	13	U	13	0.86	2.5	NA	4/13/11 19:49		242280	
n-Butanol	130	U	130	17	2.5	NA	4/13/11 19:49		242280	
2-Butanone (MEK)	25	U	25	2.5	2.5	NA	4/13/11 19:49		242280	
2-Hexanone	25	U	25	1.0	2.5	NA	4/13/11 19:49		242280	
4-Methyl-2-pentanone	25	U	25	0.86	2.5	NA	4/13/11 19:49		242280	
Acetone	50	U	50	4.0	2.5	NA	4/13/11 19:49		242280	
Benzene	13	U	13	0.78	2.5	NA	4/13/11 19:49		242280	
Bromodichloromethane	13	U	13	1.1	2.5	NA	4/13/11 19:49		242280	
Bromoform	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Bromomethane	13	U	13	1.0	2.5	NA	4/13/11 19:49		242280	
Carbon Disulfide	25	U	25	0.88	2.5	NA	4/13/11 19:49		242280	
Carbon Tetrachloride	13	U	13	0.90	2.5	NA	4/13/11 19:49		242280	
Chlorobenzene	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Chloroethane	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Chloroform	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Chloromethane	13	U	13	1.2	2.5	NA	4/13/11 19:49		242280	
Cyclohexane	25	U	25	0.75	2.5	NA	4/13/11 19:49		242280	
Dibromochloromethane	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Dichlorodifluoromethane (CFC 12)	13	U	13	1.9	2.5	NA	4/13/11 19:49		242280	
Dichloromethane	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Ethylbenzene	13	U	13	1.1	2.5	NA	4/13/11 19:49		242280	
Isopropylbenzene (Cumene)	13	U	13	0.86	2.5	NA	4/13/11 19:49		242280	
Methyl Acetate	25	U	25	1.7	2.5	NA	4/13/11 19:49		242280	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1336
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0001E-052.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Methylcyclohexane	25	U	25	0.75	2.5	NA	4/13/11 19:49		242280	
Styrene	13	U	13	0.88	2.5	NA	4/13/11 19:49		242280	
Tetrachloroethene (PCE)	13	U	13	1.1	2.5	NA	4/13/11 19:49		242280	
Toluene	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Trichloroethene (TCE)	**380**		13	0.75	2.5	NA	4/13/11 19:49		242280	
Trichlorofluoromethane (CFC 11)	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
Vinyl Chloride	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
cis-1,2-Dichloroethene	**60**		13	0.75	2.5	NA	4/13/11 19:49		242280	
cis-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
m,p-Xylenes	13	U	13	2.1	2.5	NA	4/13/11 19:49		242280	
n-Butyl Acetate	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
o-Xylene	13	U	13	1.0	2.5	NA	4/13/11 19:49		242280	
trans-1,2-Dichloroethene	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	
trans-1,3-Dichloropropene	13	U	13	0.75	2.5	NA	4/13/11 19:49		242280	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 19:49	
Dibromofluoromethane	105	89-119	4/13/11 19:49	
Toluene-d8	109	87-121	4/13/11 19:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1429
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0003E-052.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/13/11 03:01		242051	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/13/11 03:01		242051	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/13/11 03:01		242051	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/13/11 03:01		242051	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/13/11 03:01		242051	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/13/11 03:01		242051	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/13/11 03:01		242051	
n-Butanol	50	U	50	6.7	1	NA	4/13/11 03:01		242051	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/13/11 03:01		242051	
2-Hexanone	10	U	10	0.40	1	NA	4/13/11 03:01		242051	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/13/11 03:01		242051	
Acetone	20	U	20	1.6	1	NA	4/13/11 03:01		242051	
Benzene	5.0	U	5.0	0.31	1	NA	4/13/11 03:01		242051	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/13/11 03:01		242051	
Bromoform	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/13/11 03:01		242051	
Carbon Disulfide	10	U	10	0.35	1	NA	4/13/11 03:01		242051	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/13/11 03:01		242051	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Chloroform	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/13/11 03:01		242051	
Cyclohexane	10	U	10	0.30	1	NA	4/13/11 03:01		242051	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/13/11 03:01		242051	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/13/11 03:01		242051	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/13/11 03:01		242051	
Methyl Acetate	10	U	10	0.66	1	NA	4/13/11 03:01		242051	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1429
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-BW0003E-052.5-20110407	**Units:**	µg/L
Lab Code:	R1101876-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Methylcyclohexane	10	U	10	0.30	1	NA	4/13/11 03:01		242051	
Styrene	5.0	U	5.0	0.35	1	NA	4/13/11 03:01		242051	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/13/11 03:01		242051	
Toluene	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
cis-1,2-Dichloroethene	**0.56**	J	5.0	0.30	1	NA	4/13/11 03:01		242051	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/13/11 03:01		242051	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/13/11 03:01		242051	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 03:01		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 03:01	
Dibromofluoromethane	107	89-119	4/13/11 03:01	
Toluene-d8	109	87-121	4/13/11 03:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 1/11 1450
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0001-000.0-20110401	**Units:**	µg/L
Lab Code:	R1101876-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.61**	J	5.0	0.40	1	NA	4/13/11 01:00		242051	*
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/13/11 01:00		242051	*
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/13/11 01:00		242051	*
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/13/11 01:00		242051	*
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/13/11 01:00		242051	*
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/13/11 01:00		242051	*
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/13/11 01:00		242051	*
n-Butanol	50	U	50	6.7	1	NA	4/13/11 01:00		242051	*
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/13/11 01:00		242051	*
2-Hexanone	10	U	10	0.40	1	NA	4/13/11 01:00		242051	*
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/13/11 01:00		242051	*
Acetone	20	U	20	1.6	1	NA	4/13/11 01:00		242051	*
Benzene	5.0	U	5.0	0.31	1	NA	4/13/11 01:00		242051	*
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/13/11 01:00		242051	*
Bromoform	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Bromomethane	5.0	U	5.0	0.40	1	NA	4/13/11 01:00		242051	*
Carbon Disulfide	10	U	10	0.35	1	NA	4/13/11 01:00		242051	*
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/13/11 01:00		242051	*
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Chloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Chloroform	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Chloromethane	5.0	U	5.0	0.46	1	NA	4/13/11 01:00		242051	*
Cyclohexane	10	U	10	0.30	1	NA	4/13/11 01:00		242051	*
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/13/11 01:00		242051	*
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/13/11 01:00		242051	*
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/13/11 01:00		242051	*
Methyl Acetate	10	U	10	0.66	1	NA	4/13/11 01:00		242051	*

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 1/11 1450
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0001-000.0-20110401	**Units:**	µg/L
Lab Code:	R1101876-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Methylcyclohexane	10	U	10	0.30	1	NA	4/13/11 01:00		242051	*
Styrene	5.0	U	5.0	0.35	1	NA	4/13/11 01:00		242051	*
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/13/11 01:00		242051	*
Toluene	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/13/11 01:00		242051	*
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
o-Xylene	5.0	U	5.0	0.40	1	NA	4/13/11 01:00		242051	*
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 01:00		242051	*

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/13/11 01:00	
Dibromofluoromethane	105	89-119	4/13/11 01:00	
Toluene-d8	110	87-121	4/13/11 01:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 1/11 1450
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0002-000.0-20110401	**Units:**	µg/L
Lab Code:	R1101876-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/13/11 01:30		242051	*
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/13/11 01:30		242051	*
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/13/11 01:30		242051	*
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/13/11 01:30		242051	*
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/13/11 01:30		242051	*
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/13/11 01:30		242051	*
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/13/11 01:30		242051	*
n-Butanol	50	U	50	6.7	1	NA	4/13/11 01:30		242051	*
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/13/11 01:30		242051	*
2-Hexanone	10	U	10	0.40	1	NA	4/13/11 01:30		242051	*
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/13/11 01:30		242051	*
Acetone	**2.8**	J	20	1.6	1	NA	4/13/11 01:30		242051	*
Benzene	5.0	U	5.0	0.31	1	NA	4/13/11 01:30		242051	*
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/13/11 01:30		242051	*
Bromoform	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Bromomethane	5.0	U	5.0	0.40	1	NA	4/13/11 01:30		242051	*
Carbon Disulfide	10	U	10	0.35	1	NA	4/13/11 01:30		242051	*
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/13/11 01:30		242051	*
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Chloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Chloroform	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Chloromethane	5.0	U	5.0	0.46	1	NA	4/13/11 01:30		242051	*
Cyclohexane	10	U	10	0.30	1	NA	4/13/11 01:30		242051	*
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/13/11 01:30		242051	*
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/13/11 01:30		242051	*
Isopropylbenzene (Cumene)	**4.3**	J	5.0	0.34	1	NA	4/13/11 01:30		242051	*
Methyl Acetate	10	U	10	0.66	1	NA	4/13/11 01:30		242051	*

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 1/11 1450
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0002-000.0-20110401	**Units:**	µg/L
Lab Code:	R1101876-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Methylcyclohexane	10	U	10	0.30	1	NA	4/13/11 01:30		242051	*
Styrene	5.0	U	5.0	0.35	1	NA	4/13/11 01:30		242051	*
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/13/11 01:30		242051	*
Toluene	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/13/11 01:30		242051	*
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
o-Xylene	5.0	U	5.0	0.40	1	NA	4/13/11 01:30		242051	*
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 01:30		242051	*

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 01:30	
Dibromofluoromethane	105	89-119	4/13/11 01:30	
Toluene-d8	109	87-121	4/13/11 01:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1205
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0003-000.0-20110407	**Units:**	µg/L
Lab Code:	R1101876-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.60**	J	5.0	0.40	1	NA	4/13/11 02:01		242051	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/13/11 02:01		242051	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/13/11 02:01		242051	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/13/11 02:01		242051	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/13/11 02:01		242051	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/13/11 02:01		242051	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/13/11 02:01		242051	
n-Butanol	50	U	50	6.7	1	NA	4/13/11 02:01		242051	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/13/11 02:01		242051	
2-Hexanone	10	U	10	0.40	1	NA	4/13/11 02:01		242051	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/13/11 02:01		242051	
Acetone	20	U	20	1.6	1	NA	4/13/11 02:01		242051	
Benzene	5.0	U	5.0	0.31	1	NA	4/13/11 02:01		242051	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/13/11 02:01		242051	
Bromoform	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/13/11 02:01		242051	
Carbon Disulfide	10	U	10	0.35	1	NA	4/13/11 02:01		242051	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/13/11 02:01		242051	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Chloroform	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/13/11 02:01		242051	
Cyclohexane	10	U	10	0.30	1	NA	4/13/11 02:01		242051	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/13/11 02:01		242051	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/13/11 02:01		242051	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/13/11 02:01		242051	
Methyl Acetate	10	U	10	0.66	1	NA	4/13/11 02:01		242051	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1205
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0003-000.0-20110407	**Units:**	µg/L
Lab Code:	R1101876-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Methylcyclohexane	10	U	10	0.30	1	NA	4/13/11 02:01		242051	
Styrene	5.0	U	5.0	0.35	1	NA	4/13/11 02:01		242051	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/13/11 02:01		242051	
Toluene	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/13/11 02:01		242051	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/13/11 02:01		242051	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 02:01		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/13/11 02:01	
Dibromofluoromethane	105	89-119	4/13/11 02:01	
Toluene-d8	108	87-121	4/13/11 02:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1205
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0004-000.0-20110407	**Units:**	µg/L
Lab Code:	R1101876-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/13/11 02:31		242051	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/13/11 02:31		242051	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/13/11 02:31		242051	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/13/11 02:31		242051	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/13/11 02:31		242051	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/13/11 02:31		242051	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/13/11 02:31		242051	
n-Butanol	50	U	50	6.7	1	NA	4/13/11 02:31		242051	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/13/11 02:31		242051	
2-Hexanone	10	U	10	0.40	1	NA	4/13/11 02:31		242051	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/13/11 02:31		242051	
Acetone	20	U	20	1.6	1	NA	4/13/11 02:31		242051	
Benzene	5.0	U	5.0	0.31	1	NA	4/13/11 02:31		242051	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/13/11 02:31		242051	
Bromoform	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/13/11 02:31		242051	
Carbon Disulfide	10	U	10	0.35	1	NA	4/13/11 02:31		242051	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/13/11 02:31		242051	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Chloroform	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/13/11 02:31		242051	
Cyclohexane	10	U	10	0.30	1	NA	4/13/11 02:31		242051	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/13/11 02:31		242051	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/13/11 02:31		242051	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/13/11 02:31		242051	
Methyl Acetate	10	U	10	0.66	1	NA	4/13/11 02:31		242051	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11 1205
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-EF0004-000.0-20110407	**Units:**	µg/L
Lab Code:	R1101876-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Methylcyclohexane	10	U	10	0.30	1	NA	4/13/11 02:31		242051	
Styrene	5.0	U	5.0	0.35	1	NA	4/13/11 02:31		242051	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/13/11 02:31		242051	
Toluene	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/13/11 02:31		242051	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/13/11 02:31		242051	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 02:31		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 02:31	
Dibromofluoromethane	106	89-119	4/13/11 02:31	
Toluene-d8	110	87-121	4/13/11 02:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-TB-20110407	**Units:**	µg/L
Lab Code:	R1101876-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/13/11 00:30		242051	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/13/11 00:30		242051	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/13/11 00:30		242051	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/13/11 00:30		242051	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/13/11 00:30		242051	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/13/11 00:30		242051	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/13/11 00:30		242051	
n-Butanol	50	U	50	6.7	1	NA	4/13/11 00:30		242051	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/13/11 00:30		242051	
2-Hexanone	10	U	10	0.40	1	NA	4/13/11 00:30		242051	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/13/11 00:30		242051	
Acetone	20	U	20	1.6	1	NA	4/13/11 00:30		242051	
Benzene	5.0	U	5.0	0.31	1	NA	4/13/11 00:30		242051	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/13/11 00:30		242051	
Bromoform	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/13/11 00:30		242051	
Carbon Disulfide	10	U	10	0.35	1	NA	4/13/11 00:30		242051	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/13/11 00:30		242051	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Chloroform	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/13/11 00:30		242051	
Cyclohexane	10	U	10	0.30	1	NA	4/13/11 00:30		242051	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/13/11 00:30		242051	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/13/11 00:30		242051	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/13/11 00:30		242051	
Methyl Acetate	10	U	10	0.66	1	NA	4/13/11 00:30		242051	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-TB-20110407	**Units:**	µg/L
Lab Code:	R1101876-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Methylcyclohexane	10	U	10	0.30	1	NA	4/13/11 00:30		242051	
Styrene	5.0	U	5.0	0.35	1	NA	4/13/11 00:30		242051	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/13/11 00:30		242051	
Toluene	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/13/11 00:30		242051	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/13/11 00:30		242051	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 00:30		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 00:30	
Dibromofluoromethane	104	89-119	4/13/11 00:30	
Toluene-d8	109	87-121	4/13/11 00:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-FD-20110407-01	**Units:**	µg/L
Lab Code:	R1101876-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	15	50	NA	4/13/11 20:19		242280	
1,1,2,2-Tetrachloroethane	250	U	250	15	50	NA	4/13/11 20:19		242280	
1,1,2-Trichloroethane	250	U	250	15	50	NA	4/13/11 20:19		242280	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**	D	1300	100	250	NA	4/13/11 08:03		242051	
1,1-Dichloroethane (1,1-DCA)	250	U	250	15	50	NA	4/13/11 20:19		242280	
1,1-Dichloroethene (1,1-DCE)	250	U	250	19	50	NA	4/13/11 20:19		242280	
1,2,4-Trichlorobenzene	250	U	250	15	50	NA	4/13/11 20:19		242280	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	22	50	NA	4/13/11 20:19		242280	
1,2-Dibromoethane	250	U	250	15	50	NA	4/13/11 20:19		242280	
1,2-Dichlorobenzene	250	U	250	20	50	NA	4/13/11 20:19		242280	
1,2-Dichloroethane	250	U	250	15	50	NA	4/13/11 20:19		242280	
1,2-Dichloropropane	250	U	250	33	50	NA	4/13/11 20:19		242280	
1,3-Dichlorobenzene	250	U	250	18	50	NA	4/13/11 20:19		242280	
1,4-Dichlorobenzene	250	U	250	17	50	NA	4/13/11 20:19		242280	
n-Butanol	2500	U	2500	340	50	NA	4/13/11 20:19		242280	
2-Butanone (MEK)	500	U	500	50	50	NA	4/13/11 20:19		242280	
2-Hexanone	500	U	500	20	50	NA	4/13/11 20:19		242280	
4-Methyl-2-pentanone	500	U	500	17	50	NA	4/13/11 20:19		242280	
Acetone	1000	U	1000	80	50	NA	4/13/11 20:19		242280	
Benzene	250	U	250	16	50	NA	4/13/11 20:19		242280	
Bromodichloromethane	250	U	250	21	50	NA	4/13/11 20:19		242280	
Bromoform	250	U	250	15	50	NA	4/13/11 20:19		242280	
Bromomethane	250	U	250	20	50	NA	4/13/11 20:19		242280	
Carbon Disulfide	500	U	500	18	50	NA	4/13/11 20:19		242280	
Carbon Tetrachloride	250	U	250	18	50	NA	4/13/11 20:19		242280	
Chlorobenzene	250	U	250	15	50	NA	4/13/11 20:19		242280	
Chloroethane	250	U	250	15	50	NA	4/13/11 20:19		242280	
Chloroform	250	U	250	15	50	NA	4/13/11 20:19		242280	
Chloromethane	250	U	250	23	50	NA	4/13/11 20:19		242280	
Cyclohexane	500	U	500	15	50	NA	4/13/11 20:19		242280	
Dibromochloromethane	250	U	250	15	50	NA	4/13/11 20:19		242280	
Dichlorodifluoromethane (CFC 12)	250	U	250	37	50	NA	4/13/11 20:19		242280	
Dichloromethane	250	U	250	15	50	NA	4/13/11 20:19		242280	
Ethylbenzene	250	U	250	21	50	NA	4/13/11 20:19		242280	
Isopropylbenzene (Cumene)	250	U	250	17	50	NA	4/13/11 20:19		242280	
Methyl Acetate	500	U	500	33	50	NA	4/13/11 20:19		242280	

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/ 7/11
Sample Matrix:	Water	**Date Received:**	4/ 8/11
Sample Name:	LC34-FD-20110407-01	**Units:**	µg/L
Lab Code:	R1101876-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	15	50	NA	4/13/11 20:19		242280	
Methylcyclohexane	500	U	500	15	50	NA	4/13/11 20:19		242280	
Styrene	250	U	250	18	50	NA	4/13/11 20:19		242280	
Tetrachloroethene (PCE)	250	U	250	21	50	NA	4/13/11 20:19		242280	
Toluene	250	U	250	15	50	NA	4/13/11 20:19		242280	
Trichloroethene (TCE)	**350**		250	15	50	NA	4/13/11 20:19		242280	
Trichlorofluoromethane (CFC 11)	250	U	250	15	50	NA	4/13/11 20:19		242280	
Vinyl Chloride	**810**		250	15	50	NA	4/13/11 20:19		242280	
cis-1,2-Dichloroethene	**25000**	D	1300	75	250	NA	4/13/11 08:03		242051	
cis-1,3-Dichloropropene	250	U	250	15	50	NA	4/13/11 20:19		242280	
m,p-Xylenes	250	U	250	41	50	NA	4/13/11 20:19		242280	
n-Butyl Acetate	250	U	250	15	50	NA	4/13/11 20:19		242280	
o-Xylene	250	U	250	20	50	NA	4/13/11 20:19		242280	
trans-1,2-Dichloroethene	**380**		250	15	50	NA	4/13/11 20:19		242280	
trans-1,3-Dichloropropene	250	U	250	15	50	NA	4/13/11 20:19		242280	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/13/11 20:19	
Dibromofluoromethane	105	89-119	4/13/11 20:19	
Toluene-d8	111	87-121	4/13/11 20:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1101876-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	4/11/11 12:00	
Carbon, Total Organic (TOC), Average	9060	1.0	U	mg/L	1.0	1	NA	4/17/11 04:26	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	5/3/11 13:36	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103183-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/12/11 23:59		242051	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/12/11 23:59		242051	
1,2,4-Trichlorobenzene	**0.31**	J	5.0	0.30	1	NA	4/12/11 23:59		242051	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/12/11 23:59		242051	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/12/11 23:59		242051	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/12/11 23:59		242051	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/12/11 23:59		242051	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/12/11 23:59		242051	
n-Butanol	50	U	50	6.7	1	NA	4/12/11 23:59		242051	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/12/11 23:59		242051	
2-Hexanone	10	U	10	0.40	1	NA	4/12/11 23:59		242051	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/12/11 23:59		242051	
Acetone	20	U	20	1.6	1	NA	4/12/11 23:59		242051	
Benzene	5.0	U	5.0	0.31	1	NA	4/12/11 23:59		242051	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/12/11 23:59		242051	
Bromoform	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/12/11 23:59		242051	
Carbon Disulfide	10	U	10	0.35	1	NA	4/12/11 23:59		242051	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/12/11 23:59		242051	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Chloroform	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/12/11 23:59		242051	
Cyclohexane	10	U	10	0.30	1	NA	4/12/11 23:59		242051	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/12/11 23:59		242051	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/12/11 23:59		242051	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/12/11 23:59		242051	
Methyl Acetate	10	U	10	0.66	1	NA	4/12/11 23:59		242051	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103183-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242051

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Methylcyclohexane	10	U	10	0.30	1	NA	4/12/11 23:59		242051	
Styrene	5.0	U	5.0	0.35	1	NA	4/12/11 23:59		242051	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/12/11 23:59		242051	
Toluene	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/12/11 23:59		242051	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/12/11 23:59		242051	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/12/11 23:59		242051	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/12/11 23:59	
Dibromofluoromethane	106	89-119	4/12/11 23:59	
Toluene-d8	109	87-121	4/12/11 23:59	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103186-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/13/11 12:16		242280	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/13/11 12:16		242280	
1,2,4-Trichlorobenzene	**0.33**	J	5.0	0.30	1	NA	4/13/11 12:16		242280	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/13/11 12:16		242280	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/13/11 12:16		242280	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/13/11 12:16		242280	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/13/11 12:16		242280	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/13/11 12:16		242280	
n-Butanol	50	U	50	6.7	1	NA	4/13/11 12:16		242280	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/13/11 12:16		242280	
2-Hexanone	10	U	10	0.40	1	NA	4/13/11 12:16		242280	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/13/11 12:16		242280	
Acetone	20	U	20	1.6	1	NA	4/13/11 12:16		242280	
Benzene	5.0	U	5.0	0.31	1	NA	4/13/11 12:16		242280	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/13/11 12:16		242280	
Bromoform	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/13/11 12:16		242280	
Carbon Disulfide	10	U	10	0.35	1	NA	4/13/11 12:16		242280	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/13/11 12:16		242280	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Chloroform	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/13/11 12:16		242280	
Cyclohexane	10	U	10	0.30	1	NA	4/13/11 12:16		242280	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/13/11 12:16		242280	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/13/11 12:16		242280	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/13/11 12:16		242280	
Methyl Acetate	10	U	10	0.66	1	NA	4/13/11 12:16		242280	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103186-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 242280

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Methylcyclohexane	10	U	10	0.30	1	NA	4/13/11 12:16		242280	
Styrene	5.0	U	5.0	0.35	1	NA	4/13/11 12:16		242280	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/13/11 12:16		242280	
Toluene	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/13/11 12:16		242280	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/13/11 12:16		242280	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/13/11 12:16		242280	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/13/11 12:16	
Dibromofluoromethane	105	89-119	4/13/11 12:16	
Toluene-d8	108	87-121	4/13/11 12:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1101876
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	4/11/11 11:35
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1103055-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	241933
Data File Name:	J:\ACQUDATA\HPLC05\DATA\041111\X0005664.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1101876
Date Analyzed: 4/11/11 - 5/ 3/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1101876-LCS Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.02	1.00	102	90 - 110
Iodide	300.0	0.935	1.00	94	90 - 110
Carbon, Total Organic (TOC), Average	9060	9.87	10.0	99	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1101876
Date Analyzed: 4/12/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 242051

Analyte Name	Lab Control Sample RQ1103183-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.4	20.0	92	72 - 128
1,1,2,2-Tetrachloroethane	18.7	20.0	94	72 - 131
1,1,2-Trichloroethane	19.8	20.0	99	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.6	20.0	88	71 - 134
1,1-Dichloroethane (1,1-DCA)	19.3	20.0	96	76 - 122
1,1-Dichloroethene (1,1-DCE)	17.2	20.0	86	72 - 129
1,2,4-Trichlorobenzene	20.2	20.0	101	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.4	20.0	92	62 - 131
1,2-Dibromoethane	19.4	20.0	97	78 - 125
1,2-Dichlorobenzene	19.4	20.0	97	79 - 124
1,2-Dichloroethane	20.5	20.0	103	78 - 126
1,2-Dichloropropane	19.3	20.0	96	80 - 123
1,3-Dichlorobenzene	18.9	20.0	94	78 - 124
1,4-Dichlorobenzene	18.9	20.0	94	78 - 123
n-Butanol	1030	1000	103	70 - 130
2-Butanone (MEK)	19.9	20.0	100	60 - 133
2-Hexanone	18.7	20.0	93	61 - 131
4-Methyl-2-pentanone	19.8	20.0	99	61 - 132
Acetone	19.4	20.0	97	59 - 140
Benzene	19.0	20.0	95	78 - 121
Bromodichloromethane	19.5	20.0	97	80 - 125
Bromoform	19.4	20.0	97	73 - 132
Bromomethane	16.4	20.0	82	57 - 144
Carbon Disulfide	17.7	20.0	89	59 - 138
Carbon Tetrachloride	18.1	20.0	90	69 - 135
Chlorobenzene	19.6	20.0	98	80 - 121
Chloroethane	20.5	20.0	102	71 - 130
Chloroform	18.9	20.0	94	78 - 125
Chloromethane	20.6	20.0	103	62 - 133
Cyclohexane	17.6	20.0	88	67 - 127
Dibromochloromethane	19.3	20.0	97	78 - 133
Dichlorodifluoromethane (CFC 12)	19.4	20.0	97	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1101876
Date Analyzed: 4/12/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 242051

Analyte Name	Lab Control Sample RQ1103183-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.3	20.0	91	75 - 125
Ethylbenzene	18.8	20.0	94	78 - 123
Isopropylbenzene (Cumene)	21.2	20.0	106	73 - 133
Methyl Acetate	20.4	20.0	102	57 - 157
Methyl tert-Butyl Ether	19.4	20.0	97	75 - 126
Methylcyclohexane	17.7	20.0	88	64 - 133
Styrene	19.5	20.0	98	80 - 132
Tetrachloroethene (PCE)	18.6	20.0	93	72 - 131
Toluene	19.3	20.0	97	78 - 122
Trichloroethene (TCE)	18.8	20.0	94	74 - 127
Trichlorofluoromethane (CFC 11)	19.8	20.0	99	71 - 139
Vinyl Chloride	20.1	20.0	100	71 - 136
cis-1,2-Dichloroethene	18.9	20.0	95	78 - 122
cis-1,3-Dichloropropene	18.2	20.0	91	77 - 125
m,p-Xylenes	38.4	40.0	96	79 - 126
n-Butyl Acetate	20.4	20.0	102	54 - 127
o-Xylene	18.8	20.0	94	79 - 126
trans-1,2-Dichloroethene	17.3	20.0	87	75 - 121
trans-1,3-Dichloropropene	18.0	20.0	90	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1101876
Date Analyzed: 4/13/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 242280

Analyte Name	Lab Control Sample RQ1103186-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.0	20.0	100	72 - 128
1,1,2,2-Tetrachloroethane	20.5	20.0	102	72 - 131
1,1,2-Trichloroethane	21.1	20.0	106	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.1	20.0	96	71 - 134
1,1-Dichloroethane (1,1-DCA)	20.7	20.0	104	76 - 122
1,1-Dichloroethene (1,1-DCE)	18.7	20.0	93	72 - 129
1,2,4-Trichlorobenzene	21.9	20.0	110	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.1	20.0	90	62 - 131
1,2-Dibromoethane	20.7	20.0	104	78 - 125
1,2-Dichlorobenzene	20.6	20.0	103	79 - 124
1,2-Dichloroethane	21.6	20.0	108	78 - 126
1,2-Dichloropropane	21.1	20.0	105	80 - 123
1,3-Dichlorobenzene	20.7	20.0	104	78 - 124
1,4-Dichlorobenzene	20.2	20.0	101	78 - 123
n-Butanol	1030	1000	103	70 - 130
2-Butanone (MEK)	19.5	20.0	97	60 - 133
2-Hexanone	17.6	20.0	88	61 - 131
4-Methyl-2-pentanone	19.6	20.0	98	61 - 132
Acetone	18.4	20.0	92	59 - 140
Benzene	20.2	20.0	101	78 - 121
Bromodichloromethane	20.9	20.0	104	80 - 125
Bromoform	20.2	20.0	101	73 - 132
Bromomethane	17.8	20.0	89	57 - 144
Carbon Disulfide	18.3	20.0	91	59 - 138
Carbon Tetrachloride	19.4	20.0	97	69 - 135
Chlorobenzene	21.0	20.0	105	80 - 121
Chloroethane	22.1	20.0	111	71 - 130
Chloroform	20.9	20.0	105	78 - 125
Chloromethane	21.7	20.0	109	62 - 133
Cyclohexane	16.7	20.0	84	67 - 127
Dibromochloromethane	20.8	20.0	104	78 - 133
Dichlorodifluoromethane (CFC 12)	21.1	20.0	105	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1101876
Date Analyzed: 4/13/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 242280

Lab Control Sample
RQ1103186-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.8	20.0	99	75 - 125
Ethylbenzene	20.0	20.0	100	78 - 123
Isopropylbenzene (Cumene)	23.2	20.0	116	73 - 133
Methyl Acetate	20.7	20.0	104	57 - 157
Methyl tert-Butyl Ether	20.7	20.0	104	75 - 126
Methylcyclohexane	16.7	20.0	83	64 - 133
Styrene	21.0	20.0	105	80 - 132
Tetrachloroethene (PCE)	20.1	20.0	101	72 - 131
Toluene	20.7	20.0	104	78 - 122
Trichloroethene (TCE)	19.6	20.0	98	74 - 127
Trichlorofluoromethane (CFC 11)	21.6	20.0	108	71 - 139
Vinyl Chloride	21.8	20.0	109	71 - 136
cis-1,2-Dichloroethene	21.0	20.0	105	78 - 122
cis-1,3-Dichloropropene	19.8	20.0	99	77 - 125
m,p-Xylenes	41.4	40.0	103	79 - 126
n-Butyl Acetate	20.3	20.0	102	54 - 127
o-Xylene	20.5	20.0	102	79 - 126
trans-1,2-Dichloroethene	19.1	20.0	96	75 - 121
trans-1,3-Dichloropropene	19.4	20.0	97	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1101876
Date Analyzed: 4/11/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 241933

	Lab Control Sample RQ1103055-02			Duplicate Lab Control Sample RQ1103055-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.02	0.998	102	1.01	0.998	101	70 - 130	<1	30
Acetic Acid	9.18	9.97	92	9.23	9.97	93	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.78	9.98	98	9.93	9.98	100	82 - 118	2	30
Lactic Acid	9.38	10.0	94	9.43	10.0	94	70 - 117	<1	30
Propionic Acid	9.70	9.97	97	10.0	9.97	100	80 - 125	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	REMARKS
					Analysis Requested									
LC34-RW0007-038.5-20110407	04/07/11	0953	-001	GW	9	3	2	1	3					
LC34-IW0002I-027.5-20110407		1127	-002	GW	3	3								
LC34-IW0002D-037.5-20110407		1052	-003	GW	3	3								
LC34-BW0001C-038.5-20110407		1312	-004	GW	3	3								
LC34-BW0002C-038.5-20110407		1152	-005	GW	3	3								
LC34-BW0003C-038.5-20110407		1404	-006	GW	3	3								
LC34-RW0008-052.0-20110407		0916	-007	GW	9	3	2	1	3					
LC34-IW0002D1-052.5-20110407		1029	-008	GW	3	3								
LC34-BW0001E-052.5-20110407		1336	-009	GW	3	3								
LC34-BW0003E-052.5-20110407		1429	-010	GW	3	3								

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1101876
GeoSyntec Consultants
ESTCP PED LC34 TR0272

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:

Signature: [signature]

Printed Name: Joseph Barnett

Firm: Geosyntec

Date/Time: 04/07/11 – 1630

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time: 04/07/11 – 1638

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: [signature]

Printed Name: Amy Hentschke

Firm: CAS

Date/Time: 4/8/11 0918

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	REMARKS
~~LC34-FD-20110[illegible]~~	~~4/7/11~~	~~NA~~		~~GW~~	~~3~~	~~3~~								
LC34-EF0001-000.0-20110401	4/1/2011	1450	-011	GW	3	3								
LC34-EF0002-000.0-20110401	4/1/2011	1450	-012	GW	3	3								
LC34-EF0003-000.0-20110407	4/7/11	1205	-013	GW	3	3								
LC34-EF0004-000.0-20110407	4/7/11	1205	-014	GW	3	3								
LC34-TB-20110407 ☆	4/7/11	NA	-015	GW	3	3								
LC34-FD-20110407-01	4/7/11	NA	-016	GW	3	3								

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

☆ sample Id LC34-TB-20110407 is the trip blank - please use this sample ID

R1101876

RELINQUISHED BY:

Signature: [signature]

Printed Name: Joseph Bartlett

Firm: Geosyntec

Date/Time: 04/07/11 -1630

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time: 04/07/11 – 1630

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: Amy Hentschke

Printed Name: Amy Hentschke

Firm: CAS

Date/Time: 4/8/11 0918

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1101876.

Cooler received on 4/8/11 by: AHH **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO) N/A
5.	Were **Ice** or **Ice packs** present?	(YES)	NO
6.	Where did the bottles originate?	(CAS/ROC,)	CLIENT

7.	Temperature of cooler(s) upon receipt:	4°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 4/8/11 0925

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 4/8/11

Cooler Breakdown: Date: 4/8/11 Time: 1348 by: AHH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC1030011A	2/12				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

H_3PO_4 - WC92115F exp 11/14

Bottle lot numbers: 0-319-804, 031411-2K

Other Comments:

PC Secondary Review: KB 5/6/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1 Mustard Street, Suite 250 | Rochester, NY 14609 | 585-288-5380 | 585-288-8475 fax | www.caslab.com

May 12, 2011 Service Request No: R1102105

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory between April 19, 2011 and April 20, 2011. For your reference, these analyses have been assigned our service request number **R1102105**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1102105
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	4/19-20/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Fifty-two (52) water samples including three (3) Trip Blanks were collected by the client on 4/18-19/11 and were received for analysis at Columbia Analytical Services on 4/19-20/11 via a national courier. The samples were received at cooler temperatures ranging from 1-7°C on the 4/19/11 shipment and 2.8-3.6. Temperature guidelines are 0-6°C. The TOC's, VOC's and Metabolic Acids arrived on ice but slightly above guidelines (7°) in the 4/19/11 shipment due to insufficient ice in the cooler. Several sample ID's were changed as per instructions from client email of 4/21/11.

Headspace existed in 1 of 3 VOC vials for 3 locations, no data was affected. See Cooler Preservation Check Form for specific locations. Sulfide bottles had headspace for locations: BW0001D, BW0001B, BW0001C and IW0002I. The sample label for the 8260C location BW0001 (CAS R1102105-011) was determined to be "D" by process of elimination. Bromide and Iodide aliquot for BW002F was determined by process of elimination. The following locations had bubbles in VOC vials: BW002A (and RSK vials), BW002B, BW002D, BW002E, BW002F (and RSK vials), FD-20110419-10 and FD-02110419-01. Additionally BW002C and RD-2011-419-03 RSK vials had bubbles present. All vials were observed by the Project Manager on 4/21/11. Only 1 vial was affected for each sample. Bubbles ranged from 0.6 cm to 1.5 cm. Permission to analyze samples was given in client email from 4/20/11.

Locations BW02C and BW-3C (R1102105-039 and -046 respectively) were not noted for Sulfide and Anions on the chain. Aliquots were received for these locations. Analyses were conducted as per client email from 4/20/11.

Volatile Organic Compounds

Forty-two (42) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C. Twenty-seven (27) waters samples were analyzed for GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples except the following: the minimum response factor for Carbon Tetrachloride was not met in the ICAL/Daily CCV from 4/21/11. The data has been considered reportable since the MRL has been verified by the low standard in the calibration. The Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Chloromethane on 4/23/11. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (RSK) recoveries were all within QC limits except for 8260C LCS for n-Butanol on 4/23/11 which was outside limits, high. The recovery is flagged as "*".

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All samples were initially analyzed within 7 days from collection, the holding time for unpreserved vials which were to be used for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of

Approved by Karen Beerbower **Date** 5/17/11

the sample. Location LC34-FD-20110419-10 (CAS Submission #R1102150-060) dilution was run on the 8th day from sample collection. The compound is flagged as "*", outside of holding time.

The Laboratory Method Blanks were free from contamination except for low level hits between the MRL and MDL for the compound 1,2,4-Trichlorobenzene on the 4/25/11 and 4/263/11 analytical runs.

No other analytical or QC problems were encountered.

HPLC Methodology

Twenty-seven (27) water samples were analyzed for Organic Acids by HPLC.

All Initial and Continuing Calibration Criteria were met.

Batch QC is included in the report. All LCS and LCSD recoveries were within QC acceptance limits. All RPD calculations were acceptable.

All samples were analyzed within the proper holding time for the method.

The Laboratory Method Blanks were free from contamination.

No problems were encountered during the analysis of these samples.

Inorganic Parameters

Thirty-three (33) water samples were analyzed for TOC by method 9060, 24 Bromide and Iodide by IC method 300.0, and 13 Sulfide by SM 4500-S2-F, Alkalinities by SM 2320 B and Anions: Chloride, Nitrate, Nitrite and Sulfate by IC method 300.0. The TOC Quad average has been reported.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

All holding times were met for these analyses except for 9 Nitrite samples which were repeated outside the 48 hour holding times due to interference from Chloride not noted on the initial runs. Samples were repeated as soon as possible after the interference was detected. All were re-analyzed less than 3 hours outside of the holding time.

All Laboratory Method Blanks were free from contamination.

Approved by Karen Burke **Date** 5/17/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1102105

Lab ID	Client ID
R1102105-001	LC34-IW0002I-027.5-20110418
R1102105-002	LC34-IW0002I-027.5-20110418 Dissolved
R1102105-003	LC34-IW0002D-037.5-20110418
R1102105-004	LC34-IW0002D-037.5-20110418 Dissolved
R1102105-005	LC34-BW0001A-024.5-20110418
R1102105-006	LC34-BW0001A-024.5-20110418 Dissolved
R1102105-007	LC34-BW0001B-031.5-20110418
R1102105-008	LC34-BW0001B-031.5-20110418 Dissolved
R1102105-009	LC34-BW0001C-038.5-20110418
R1102105-010	LC34-BW0001C-038.5-20110418 Dissolved
R1102105-011	LC34-BW0001D-045.5-20110418
R1102105-012	LC34-BW0001D-045.5-20110418 Dissolved
R1102105-013	LC34-IW0002D1-050.0-20110418
R1102105-014	LC34-IW0002D1-050.0-20110418 Dissolved
R1102105-015	LC34-BW0001E-052.5-20110418
R1102105-016	LC34-BW0001E-052.5-20110418 Dissolved
R1102105-017	LC34-BW0001F-059.5-20110418
R1102105-018	LC34-BW0001F-059.5-20110418 Dissolved
R1102105-019	LC34-IW0076-075.0-20110418
R1102105-020	LC34-IW0076-075.0-20110418 Dissolved
R1102105-021	LC34-IW0067D-040.5-20110418
R1102105-022	LC34-IW0067D1-068.0-20110418
R1102105-023	LC34-IW0070D-040.5-20110418
R1102105-024	LC34-IW0070D1-070.0-20110418
R1102105-025	LC34-IW0071D-040.5-20110418
R1102105-026	LC34-IW0071D1-070.0-20110418
R1102105-027	LC34-EF0005-000.0-20110418
R1102105-028	LC34-EF0006.000.0-20110418
R1102105-029	LC34-TB-20110418-01
R1102105-030	LC34-RW0007-038.5-20110419
R1102105-031	LC34-RW0007-038.5-20110419 Dissolved
R1102105-032	LC34-RW0007-038.5-20110419-D
R1102105-033	LC34-RW0007-038.5-20110419-D Dissolved
R1102105-034	LC34-RW0008-038.5-20110419
R1102105-035	LC34-RW0008-038.5-20110419 Dissolved
R1102105-036	LC34-RW0008-038.5-20110419-D
R1102105-037	LC34-BW0002A-024.5-20110419
R1102105-038	LC34-BW0002B-031.5-20110419
R1102105-039	LC34-BW0002C-038.5-20110419
R1102105-040	LC34-BW0002D-045.5-20110419
R1102105-041	LC34-BW0002E-052.5-20110419
R1102105-042	LC34-BW0002F-059.5-20110419
R1102105-043	LC34-BW0003A-024.5-20110419
R1102105-044	LC34-BW0003B-031.5-20110419

Lab ID	Client ID
R1102105-045	LC34-BW0003B-031.5-20110419-D
R1102105-046	LC34-BW0003C-038.5-20110419
R1102105-047	LC34-BW0003D-045.5-20110419
R1102105-048	LC34-BW0003D-D-045.5-20110419
R1102105-049	LC34-BW0003E-052.5-20110419
R1102105-050	LC34-BW0003F-059.5-20110419
R1102105-051	LC34-FD-20110419-01
R1102105-052	LC34-FD-20110419-02
R1102105-053	LC34-FD-20110419-03
R1102105-054	LC34-FD-20110419-04
R1102105-055	LC34-FD-20110419-05
R1102105-056	LC34-FD-20110419-06
R1102105-057	LC34-FD-20110419-07
R1102105-058	LC34-FD-20110419-08
R1102105-059	LC34-FD-20110419-09
R1102105-060	LC34-FD-20110419-10
R1102105-061	LC34-FD-20110419-11
R1102105-062	LC34-FD-20110419-12
R1102105-063	LC34-FD-20110419-13
R1102105-064	LC34-TB-20110419-01
R1102105-065	LC34-TB-20110419-02

00005 rev

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1510
Date Received: 4/19/11

Sample Name: LC34-IW0002I-027.5-20110418
Lab Code: R1102105-001

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**250**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:24	
Carbon, Total Organic (TOC), Average	9060	**3.3**		mg/L	1.0	1	NA	4/29/11 17:47	
Chloride	300.0	**73.1**		mg/L	2.0	10	NA	4/19/11 20:24	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 14:57	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:24	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:24	
Sulfate	300.0	**51.4**		mg/L	2.0	10	NA	4/19/11 20:24	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1510
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002I-027.5-20110418 Dissolved		
Lab Code:	R1102105-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:13	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/27/11	4/30/11 20:13	
Manganese, Dissolved	6010C	**31**		µg/L	10	1	4/27/11	4/30/11 20:13	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1510
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002I-027.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**63000**		2500	200	500	NA	4/22/11 12:40		243340	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	4/22/11 12:40		243340	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	4/22/11 12:40		243340	
1,2-Dibromoethane	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	4/22/11 12:40		243340	
1,2-Dichloroethane	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
1,2-Dichloropropane	2500	U	2500	330	500	NA	4/22/11 12:40		243340	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	4/22/11 12:40		243340	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	4/22/11 12:40		243340	
n-Butanol	25000	U	25000	3400	500	NA	4/22/11 12:40		243340	
2-Butanone (MEK)	5000	U	5000	500	500	NA	4/22/11 12:40		243340	
2-Hexanone	5000	U	5000	200	500	NA	4/22/11 12:40		243340	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	4/22/11 12:40		243340	
Acetone	10000	U	10000	800	500	NA	4/22/11 12:40		243340	
Benzene	2500	U	2500	160	500	NA	4/22/11 12:40		243340	
Bromodichloromethane	2500	U	2500	210	500	NA	4/22/11 12:40		243340	
Bromoform	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Bromomethane	2500	U	2500	200	500	NA	4/22/11 12:40		243340	
Carbon Disulfide	5000	U	5000	180	500	NA	4/22/11 12:40		243340	
Carbon Tetrachloride	2500	U	2500	180	500	NA	4/22/11 12:40		243340	
Chlorobenzene	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Chloroethane	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Chloroform	**540**	J	2500	150	500	NA	4/22/11 12:40		243340	
Chloromethane	2500	U	2500	230	500	NA	4/22/11 12:40		243340	
Cyclohexane	5000	U	5000	150	500	NA	4/22/11 12:40		243340	
Dibromochloromethane	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	4/22/11 12:40		243340	
Dichloromethane	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Ethylbenzene	2500	U	2500	210	500	NA	4/22/11 12:40		243340	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	4/22/11 12:40		243340	
Methyl Acetate	5000	U	5000	330	500	NA	4/22/11 12:40		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1510
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002I-027.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Methylcyclohexane	5000	U	5000	150	500	NA	4/22/11 12:40		243340	
Styrene	2500	U	2500	180	500	NA	4/22/11 12:40		243340	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	4/22/11 12:40		243340	
Toluene	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Trichloroethene (TCE)	**180**	J	2500	150	500	NA	4/22/11 12:40		243340	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
Vinyl Chloride	**1000**	J	2500	150	500	NA	4/22/11 12:40		243340	
cis-1,2-Dichloroethene	**21000**		2500	150	500	NA	4/22/11 12:40		243340	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
m,p-Xylenes	2500	U	2500	410	500	NA	4/22/11 12:40		243340	
n-Butyl Acetate	2500	U	2500	150	500	NA	4/22/11 12:40		243340	
o-Xylene	2500	U	2500	200	500	NA	4/22/11 12:40		243340	
trans-1,2-Dichloroethene	**430**	J	2500	150	500	NA	4/22/11 12:40		243340	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/22/11 12:40		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/22/11 12:40	
Dibromofluoromethane	111	89-119	4/22/11 12:40	
Toluene-d8	106	87-121	4/22/11 12:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1510
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002I-027.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243146

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/22/11 14:57		243146	
Ethene	**19**		1.0	1	NA	4/22/11 14:57		243146	
Methane	**61**		2.0	1	NA	4/22/11 14:57		243146	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1510
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/6/11 00:30
Sample Name:	LC34-IW0002I-027.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050511\C1638.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**2.3**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1457
Date Received: 4/19/11

Sample Name: LC34-IW0002D-037.5-20110418
Lab Code: R1102105-003

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**318**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:38	
Carbon, Total Organic (TOC), Average	9060	**5.1**		mg/L	1.0	1	NA	4/29/11 18:23	
Chloride	300.0	**301**		mg/L	10	50	NA	4/20/11 12:48	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 15:10	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:38	
Nitrite as Nitrogen	300.0	5.0	U	mg/L	5.0	50	NA	4/20/11 12:48	
Sulfate	300.0	**31.8**		mg/L	2.0	10	NA	4/19/11 20:38	
Sulfide, Total	SM 4500-S2- F	0.98	U	mg/L	0.98	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1457
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002D-037.5-20110418 Dissolved		
Lab Code:	R1102105-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:19	
Iron, Dissolved	6010C	**110**		µg/L	100	1	4/27/11	4/30/11 20:19	
Manganese, Dissolved	6010C	**11**		µg/L	10	1	4/27/11	4/30/11 20:19	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1457
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002D-037.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**13000**		1300	100	250	NA	4/22/11 13:07		243340	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	4/22/11 13:07		243340	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/22/11 13:07		243340	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/22/11 13:07		243340	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/22/11 13:07		243340	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/22/11 13:07		243340	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/22/11 13:07		243340	
n-Butanol	13000	U	13000	1700	250	NA	4/22/11 13:07		243340	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/22/11 13:07		243340	
2-Hexanone	2500	U	2500	100	250	NA	4/22/11 13:07		243340	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/22/11 13:07		243340	
Acetone	5000	U	5000	400	250	NA	4/22/11 13:07		243340	
Benzene	1300	U	1300	78	250	NA	4/22/11 13:07		243340	
Bromodichloromethane	1300	U	1300	110	250	NA	4/22/11 13:07		243340	
Bromoform	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
Bromomethane	1300	U	1300	100	250	NA	4/22/11 13:07		243340	
Carbon Disulfide	2500	U	2500	88	250	NA	4/22/11 13:07		243340	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/22/11 13:07		243340	
Chlorobenzene	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
Chloroethane	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
Chloroform	**280**	J	1300	75	250	NA	4/22/11 13:07		243340	
Chloromethane	1300	U	1300	120	250	NA	4/22/11 13:07		243340	
Cyclohexane	2500	U	2500	75	250	NA	4/22/11 13:07		243340	
Dibromochloromethane	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/22/11 13:07		243340	
Dichloromethane	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
Ethylbenzene	1300	U	1300	110	250	NA	4/22/11 13:07		243340	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/22/11 13:07		243340	
Methyl Acetate	2500	U	2500	170	250	NA	4/22/11 13:07		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1457
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002D-037.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
Methylcyclohexane	2500	U	2500	75	250	NA	4/22/11 13:07		243340	
Styrene	1300	U	1300	88	250	NA	4/22/11 13:07		243340	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/22/11 13:07		243340	
Toluene	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
Trichloroethene (TCE)	**490**	J	1300	75	250	NA	4/22/11 13:07		243340	
Trichlorofluoromethane (CFC 11)	**95**	J	1300	75	250	NA	4/22/11 13:07		243340	
Vinyl Chloride	**3500**		1300	75	250	NA	4/22/11 13:07		243340	
cis-1,2-Dichloroethene	**26000**		1300	75	250	NA	4/22/11 13:07		243340	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
m,p-Xylenes	1300	U	1300	210	250	NA	4/22/11 13:07		243340	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/22/11 13:07		243340	
o-Xylene	1300	U	1300	100	250	NA	4/22/11 13:07		243340	
trans-1,2-Dichloroethene	**370**	J	1300	75	250	NA	4/22/11 13:07		243340	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/22/11 13:07		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	4/22/11 13:07	
Dibromofluoromethane	110	89-119	4/22/11 13:07	
Toluene-d8	105	87-121	4/22/11 13:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1457
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002D-037.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243146

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/22/11 15:07		243146	
Ethene	**110**	D	2.0	2	NA	4/22/11 15:18		243146	
Methane	**110**	D	4.0	2	NA	4/22/11 15:18		243146	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1457
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/6/11 07:40
Sample Name:	LC34-IW0002D-037.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050511\C1645.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**24**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1020
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001A-024.5-20110418		
Lab Code:	R1102105-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**270**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:51	
Carbon, Total Organic (TOC), Average	9060	**3.2**		mg/L	1.0	1	NA	4/29/11 19:33	
Chloride	300.0	**83.8**		mg/L	2.0	10	NA	4/19/11 20:51	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 15:23	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:51	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 20:51	
Sulfate	300.0	**49.2**		mg/L	2.0	10	NA	4/19/11 20:51	
Sulfide, Total	SM 4500-S2- F	0.99	U	mg/L	0.99	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1020
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001A-024.5-20110418 Dissolved		
Lab Code:	R1102105-006	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:25	
Iron, Dissolved	6010C	**230**		µg/L	100	1	4/27/11	4/30/11 20:25	
Manganese, Dissolved	6010C	**31**		µg/L	10	1	4/27/11	4/30/11 20:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1020
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001A-024.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**65000**		2500	200	500	NA	4/22/11 13:34		243340	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	4/22/11 13:34		243340	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	4/22/11 13:34		243340	
1,2-Dibromoethane	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	4/22/11 13:34		243340	
1,2-Dichloroethane	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
1,2-Dichloropropane	2500	U	2500	330	500	NA	4/22/11 13:34		243340	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	4/22/11 13:34		243340	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	4/22/11 13:34		243340	
n-Butanol	25000	U	25000	3400	500	NA	4/22/11 13:34		243340	
2-Butanone (MEK)	5000	U	5000	500	500	NA	4/22/11 13:34		243340	
2-Hexanone	5000	U	5000	200	500	NA	4/22/11 13:34		243340	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	4/22/11 13:34		243340	
Acetone	**3500**	J	10000	800	500	NA	4/22/11 13:34		243340	
Benzene	2500	U	2500	160	500	NA	4/22/11 13:34		243340	
Bromodichloromethane	2500	U	2500	210	500	NA	4/22/11 13:34		243340	
Bromoform	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Bromomethane	2500	U	2500	200	500	NA	4/22/11 13:34		243340	
Carbon Disulfide	5000	U	5000	180	500	NA	4/22/11 13:34		243340	
Carbon Tetrachloride	2500	U	2500	180	500	NA	4/22/11 13:34		243340	
Chlorobenzene	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Chloroethane	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Chloroform	**650**	J	2500	150	500	NA	4/22/11 13:34		243340	
Chloromethane	2500	U	2500	230	500	NA	4/22/11 13:34		243340	
Cyclohexane	5000	U	5000	150	500	NA	4/22/11 13:34		243340	
Dibromochloromethane	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	4/22/11 13:34		243340	
Dichloromethane	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Ethylbenzene	2500	U	2500	210	500	NA	4/22/11 13:34		243340	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	4/22/11 13:34		243340	
Methyl Acetate	5000	U	5000	330	500	NA	4/22/11 13:34		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1020
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001A-024.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Methylcyclohexane	5000	U	5000	150	500	NA	4/22/11 13:34		243340	
Styrene	2500	U	2500	180	500	NA	4/22/11 13:34		243340	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	4/22/11 13:34		243340	
Toluene	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Trichloroethene (TCE)	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
Vinyl Chloride	**2200**	J	2500	150	500	NA	4/22/11 13:34		243340	
cis-1,2-Dichloroethene	**39000**		2500	150	500	NA	4/22/11 13:34		243340	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
m,p-Xylenes	2500	U	2500	410	500	NA	4/22/11 13:34		243340	
n-Butyl Acetate	2500	U	2500	150	500	NA	4/22/11 13:34		243340	
o-Xylene	2500	U	2500	200	500	NA	4/22/11 13:34		243340	
trans-1,2-Dichloroethene	**830**	J	2500	150	500	NA	4/22/11 13:34		243340	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/22/11 13:34		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	4/22/11 13:34	
Dibromofluoromethane	113	89-119	4/22/11 13:34	
Toluene-d8	107	87-121	4/22/11 13:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1020
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001A-024.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243146

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/22/11 15:28		243146	
Ethene	**30**		1.0	1	NA	4/22/11 15:28		243146	
Methane	**76**		2.0	1	NA	4/22/11 15:28		243146	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1020
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/6/11 09:42
Sample Name:	LC34-BW0001A-024.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050511\C1647.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**1.7**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1040
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001B-031.5-20110418		
Lab Code:	R1102105-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**329**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:04	
Carbon, Total Organic (TOC), Average	9060	**5.7**		mg/L	1.0	1	NA	4/29/11 20:09	
Chloride	300.0	**258**		mg/L	10	50	NA	4/20/11 13:28	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 15:36	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:04	
Nitrite as Nitrogen	300.0	5.0	U	mg/L	5.0	50	NA	4/20/11 13:28	*
Sulfate	300.0	**44.1**		mg/L	2.0	10	NA	4/19/11 21:04	
Sulfide, Total	SM 4500-S2- F	0.99	U	mg/L	0.99	1	NA	4/22/11 09:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1040
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001B-031.5-20110418 Dissolved		
Lab Code:	R1102105-008	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:30	
Iron, Dissolved	6010C	**110**		µg/L	100	1	4/27/11	4/30/11 20:30	
Manganese, Dissolved	6010C	**25**		µg/L	10	1	4/27/11	4/30/11 20:30	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1040
Date Received: 4/19/11

Sample Name: LC34-BW0001B-031.5-20110418
Lab Code: R1102105-007

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
1,1,2,2-Tetrachloroethane	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
1,1,2-Trichloroethane	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**150000**		5000	400	1000	NA	4/22/11 14:01		243340	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	370	1000	NA	4/22/11 14:01		243340	
1,2,4-Trichlorobenzene	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	430	1000	NA	4/22/11 14:01		243340	
1,2-Dibromoethane	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
1,2-Dichlorobenzene	5000	U	5000	400	1000	NA	4/22/11 14:01		243340	
1,2-Dichloroethane	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
1,2-Dichloropropane	5000	U	5000	660	1000	NA	4/22/11 14:01		243340	
1,3-Dichlorobenzene	5000	U	5000	360	1000	NA	4/22/11 14:01		243340	
1,4-Dichlorobenzene	5000	U	5000	340	1000	NA	4/22/11 14:01		243340	
n-Butanol	50000	U	50000	6700	1000	NA	4/22/11 14:01		243340	
2-Butanone (MEK)	10000	U	10000	1000	1000	NA	4/22/11 14:01		243340	
2-Hexanone	10000	U	10000	400	1000	NA	4/22/11 14:01		243340	
4-Methyl-2-pentanone	10000	U	10000	340	1000	NA	4/22/11 14:01		243340	
Acetone	**11000**	J	20000	1600	1000	NA	4/22/11 14:01		243340	
Benzene	5000	U	5000	310	1000	NA	4/22/11 14:01		243340	
Bromodichloromethane	5000	U	5000	410	1000	NA	4/22/11 14:01		243340	
Bromoform	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Bromomethane	5000	U	5000	400	1000	NA	4/22/11 14:01		243340	
Carbon Disulfide	10000	U	10000	350	1000	NA	4/22/11 14:01		243340	
Carbon Tetrachloride	5000	U	5000	360	1000	NA	4/22/11 14:01		243340	
Chlorobenzene	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Chloroethane	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Chloroform	**700**	J	5000	300	1000	NA	4/22/11 14:01		243340	
Chloromethane	5000	U	5000	460	1000	NA	4/22/11 14:01		243340	
Cyclohexane	10000	U	10000	300	1000	NA	4/22/11 14:01		243340	
Dibromochloromethane	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	730	1000	NA	4/22/11 14:01		243340	
Dichloromethane	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Ethylbenzene	5000	U	5000	420	1000	NA	4/22/11 14:01		243340	
Isopropylbenzene (Cumene)	5000	U	5000	340	1000	NA	4/22/11 14:01		243340	
Methyl Acetate	10000	U	10000	660	1000	NA	4/22/11 14:01		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1040
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001B-031.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Methylcyclohexane	10000	U	10000	300	1000	NA	4/22/11 14:01		243340	
Styrene	5000	U	5000	350	1000	NA	4/22/11 14:01		243340	
Tetrachloroethene (PCE)	5000	U	5000	420	1000	NA	4/22/11 14:01		243340	
Toluene	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Trichloroethene (TCE)	**14000**		5000	300	1000	NA	4/22/11 14:01		243340	
Trichlorofluoromethane (CFC 11)	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
Vinyl Chloride	**1800**	J	5000	300	1000	NA	4/22/11 14:01		243340	
cis-1,2-Dichloroethene	**28000**		5000	300	1000	NA	4/22/11 14:01		243340	
cis-1,3-Dichloropropene	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
m,p-Xylenes	5000	U	5000	810	1000	NA	4/22/11 14:01		243340	
n-Butyl Acetate	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	
o-Xylene	5000	U	5000	400	1000	NA	4/22/11 14:01		243340	
trans-1,2-Dichloroethene	**470**	J	5000	300	1000	NA	4/22/11 14:01		243340	
trans-1,3-Dichloropropene	5000	U	5000	300	1000	NA	4/22/11 14:01		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/22/11 14:01	
Dibromofluoromethane	110	89-119	4/22/11 14:01	
Toluene-d8	107	87-121	4/22/11 14:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1040
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001B-031.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 13:19		243684	
Ethene	**17**		1.0	1	NA	4/26/11 13:19		243684	
Methane	**85**		2.0	1	NA	4/26/11 13:19		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1040
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/6/11 11:45
Sample Name:	LC34-BW0001B-031.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050511\C1649.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**27**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	**2.3**		1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1120
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001C-038.5-20110418		
Lab Code:	R1102105-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**341**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:17	
Carbon, Total Organic (TOC), Average	9060	**7.3**		mg/L	1.0	1	NA	4/29/11 20:44	
Chloride	300.0	**570**		mg/L	20	100	NA	4/20/11 13:42	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 15:49	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:17	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	4/20/11 13:42	*
Sulfate	300.0	**26.9**		mg/L	2.0	10	NA	4/19/11 21:17	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1120
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001C-038.5-20110418 Dissolved		
Lab Code:	R1102105-010	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:46	
Iron, Dissolved	6010C	**110**		µg/L	100	1	4/27/11	4/30/11 20:46	
Manganese, Dissolved	6010C	**17**		µg/L	10	1	4/27/11	4/30/11 20:46	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1120
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001C-038.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**59000**		2500	200	500	NA	4/22/11 14:29		243340	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	4/22/11 14:29		243340	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	4/22/11 14:29		243340	
1,2-Dibromoethane	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	4/22/11 14:29		243340	
1,2-Dichloroethane	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
1,2-Dichloropropane	2500	U	2500	330	500	NA	4/22/11 14:29		243340	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	4/22/11 14:29		243340	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	4/22/11 14:29		243340	
n-Butanol	25000	U	25000	3400	500	NA	4/22/11 14:29		243340	
2-Butanone (MEK)	5000	U	5000	500	500	NA	4/22/11 14:29		243340	
2-Hexanone	5000	U	5000	200	500	NA	4/22/11 14:29		243340	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	4/22/11 14:29		243340	
Acetone	10000	U	10000	800	500	NA	4/22/11 14:29		243340	
Benzene	2500	U	2500	160	500	NA	4/22/11 14:29		243340	
Bromodichloromethane	2500	U	2500	210	500	NA	4/22/11 14:29		243340	
Bromoform	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Bromomethane	2500	U	2500	200	500	NA	4/22/11 14:29		243340	
Carbon Disulfide	5000	U	5000	180	500	NA	4/22/11 14:29		243340	
Carbon Tetrachloride	2500	U	2500	180	500	NA	4/22/11 14:29		243340	
Chlorobenzene	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Chloroethane	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Chloroform	**520**	J	2500	150	500	NA	4/22/11 14:29		243340	
Chloromethane	2500	U	2500	230	500	NA	4/22/11 14:29		243340	
Cyclohexane	5000	U	5000	150	500	NA	4/22/11 14:29		243340	
Dibromochloromethane	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	4/22/11 14:29		243340	
Dichloromethane	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Ethylbenzene	2500	U	2500	210	500	NA	4/22/11 14:29		243340	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	4/22/11 14:29		243340	
Methyl Acetate	5000	U	5000	330	500	NA	4/22/11 14:29		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1120
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001C-038.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Methylcyclohexane	5000	U	5000	150	500	NA	4/22/11 14:29		243340	
Styrene	2500	U	2500	180	500	NA	4/22/11 14:29		243340	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	4/22/11 14:29		243340	
Toluene	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Trichloroethene (TCE)	**45000**		2500	150	500	NA	4/22/11 14:29		243340	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
Vinyl Chloride	**630**	J	2500	150	500	NA	4/22/11 14:29		243340	
cis-1,2-Dichloroethene	**25000**		2500	150	500	NA	4/22/11 14:29		243340	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
m,p-Xylenes	2500	U	2500	410	500	NA	4/22/11 14:29		243340	
n-Butyl Acetate	2500	U	2500	150	500	NA	4/22/11 14:29		243340	
o-Xylene	2500	U	2500	200	500	NA	4/22/11 14:29		243340	
trans-1,2-Dichloroethene	**260**	J	2500	150	500	NA	4/22/11 14:29		243340	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/22/11 14:29		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	4/22/11 14:29	
Dibromofluoromethane	107	89-119	4/22/11 14:29	
Toluene-d8	103	87-121	4/22/11 14:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1120
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001C-038.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-009	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 13:29		243684	
Ethene	**9.5**		1.0	1	NA	4/26/11 13:29		243684	
Methane	**62**		2.0	1	NA	4/26/11 13:29		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1120
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/6/11 13:48
Sample Name:	LC34-BW0001C-038.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-009	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050511\C1651.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**65**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	**1.2**		1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1400
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001D-045.5-20110418		
Lab Code:	R1102105-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**251**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:31	
Carbon, Total Organic (TOC), Average	9060	**7.5**		mg/L	1.0	1	NA	4/29/11 21:20	
Chloride	300.0	**780**		mg/L	20	100	NA	4/20/11 13:55	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 16:54	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:31	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	4/20/11 13:55	
Sulfate	300.0	**76.4**		mg/L	2.0	10	NA	4/19/11 21:31	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/22/11 09:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1400
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001D-045.5-20110418 Dissolved		
Lab Code:	R1102105-012	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:52	
Iron, Dissolved	6010C	**110**		µg/L	100	1	4/27/11	4/30/11 20:52	
Manganese, Dissolved	6010C	**34**		µg/L	10	1	4/27/11	4/30/11 20:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1400
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001D-045.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
1,1,2,2-Tetrachloroethane	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
1,1,2-Trichloroethane	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**55000**		5000	400	1000	NA	4/22/11 14:56		243340	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	370	1000	NA	4/22/11 14:56		243340	
1,2,4-Trichlorobenzene	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	430	1000	NA	4/22/11 14:56		243340	
1,2-Dibromoethane	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
1,2-Dichlorobenzene	5000	U	5000	400	1000	NA	4/22/11 14:56		243340	
1,2-Dichloroethane	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
1,2-Dichloropropane	5000	U	5000	660	1000	NA	4/22/11 14:56		243340	
1,3-Dichlorobenzene	5000	U	5000	360	1000	NA	4/22/11 14:56		243340	
1,4-Dichlorobenzene	5000	U	5000	340	1000	NA	4/22/11 14:56		243340	
n-Butanol	50000	U	50000	6700	1000	NA	4/22/11 14:56		243340	
2-Butanone (MEK)	10000	U	10000	1000	1000	NA	4/22/11 14:56		243340	
2-Hexanone	10000	U	10000	400	1000	NA	4/22/11 14:56		243340	
4-Methyl-2-pentanone	10000	U	10000	340	1000	NA	4/22/11 14:56		243340	
Acetone	20000	U	20000	1600	1000	NA	4/22/11 14:56		243340	
Benzene	5000	U	5000	310	1000	NA	4/22/11 14:56		243340	
Bromodichloromethane	5000	U	5000	410	1000	NA	4/22/11 14:56		243340	
Bromoform	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Bromomethane	5000	U	5000	400	1000	NA	4/22/11 14:56		243340	
Carbon Disulfide	10000	U	10000	350	1000	NA	4/22/11 14:56		243340	
Carbon Tetrachloride	5000	U	5000	360	1000	NA	4/22/11 14:56		243340	
Chlorobenzene	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Chloroethane	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Chloroform	**790**	J	5000	300	1000	NA	4/22/11 14:56		243340	
Chloromethane	5000	U	5000	460	1000	NA	4/22/11 14:56		243340	
Cyclohexane	10000	U	10000	300	1000	NA	4/22/11 14:56		243340	
Dibromochloromethane	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	730	1000	NA	4/22/11 14:56		243340	
Dichloromethane	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Ethylbenzene	5000	U	5000	420	1000	NA	4/22/11 14:56		243340	
Isopropylbenzene (Cumene)	5000	U	5000	340	1000	NA	4/22/11 14:56		243340	
Methyl Acetate	10000	U	10000	660	1000	NA	4/22/11 14:56		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1400
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001D-045.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Methylcyclohexane	10000	U	10000	300	1000	NA	4/22/11 14:56		243340	
Styrene	5000	U	5000	350	1000	NA	4/22/11 14:56		243340	
Tetrachloroethene (PCE)	5000	U	5000	420	1000	NA	4/22/11 14:56		243340	
Toluene	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Trichloroethene (TCE)	**180000**	D	10000	600	2000	NA	4/23/11 13:50		243343	
Trichlorofluoromethane (CFC 11)	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
Vinyl Chloride	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
cis-1,2-Dichloroethene	**6100**		5000	300	1000	NA	4/22/11 14:56		243340	
cis-1,3-Dichloropropene	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
m,p-Xylenes	5000	U	5000	810	1000	NA	4/22/11 14:56		243340	
n-Butyl Acetate	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
o-Xylene	5000	U	5000	400	1000	NA	4/22/11 14:56		243340	
trans-1,2-Dichloroethene	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	
trans-1,3-Dichloropropene	5000	U	5000	300	1000	NA	4/22/11 14:56		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	4/22/11 14:56	
Dibromofluoromethane	109	89-119	4/22/11 14:56	
Toluene-d8	104	87-121	4/22/11 14:56	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1400
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001D-045.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-011	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 13:56		243684	
Ethene	**5.3**		1.0	1	NA	4/26/11 13:56		243684	
Methane	**14**		2.0	1	NA	4/26/11 13:56		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1400
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/7/11 20:43
Sample Name:	LC34-BW0001D-045.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-011	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050711\C1664.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**50**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	**1.1**		1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1535
Date Received: 4/19/11

Sample Name: LC34-IW0002D1-050.0-20110418
Lab Code: R1102105-013

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**167**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	**1.6**		mg/L	1.0	10	NA	4/19/11 21:44	
Carbon, Total Organic (TOC), Average	9060	**3.1**		mg/L	1.0	1	NA	4/29/11 23:06	
Chloride	300.0	**628**		mg/L	40	200	NA	4/20/11 14:08	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 17:07	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:44	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/20/11 14:08	
Sulfate	300.0	**105**		mg/L	4.0	20	NA	4/29/11 23:14	
Sulfide, Total	SM 4500-S2- F	0.99	U	mg/L	0.99	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1535
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002D1-050.0-20110418 Dissolved		
Lab Code:	R1102105-014	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:58	
Iron, Dissolved	6010C	**110**		µg/L	100	1	4/27/11	4/30/11 20:58	
Manganese, Dissolved	6010C	**13**		µg/L	10	1	4/27/11	4/30/11 20:58	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1535
Date Received: 4/19/11

Sample Name: LC34-IW0002D1-050.0-20110418
Lab Code: R1102105-013

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 15:23		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 15:23		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 15:23		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 15:23		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 15:23		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 15:23		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 15:23		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 15:23		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 15:23		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 15:23		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 15:23		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 15:23		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 15:23		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 15:23		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 15:23		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 15:23		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 15:23		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 15:23		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 15:23		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 15:23		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 15:23		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 15:23		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 15:23		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1535
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002D1-050.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 15:23		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 15:23		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 15:23		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Trichloroethene (TCE)	**7.7**		5.0	0.30	1	NA	4/22/11 15:23		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
Vinyl Chloride	**0.98**	J	5.0	0.30	1	NA	4/22/11 15:23		243340	
cis-1,2-Dichloroethene	**24**		5.0	0.30	1	NA	4/22/11 15:23		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 15:23		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 15:23		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 15:23		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/22/11 15:23	
Dibromofluoromethane	108	89-119	4/22/11 15:23	
Toluene-d8	104	87-121	4/22/11 15:23	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1535
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0002D1-050.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-013	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 14:09		243684	
Ethene	1.0	U	1.0	1	NA	4/26/11 14:09		243684	
Methane	**8.6**		2.0	1	NA	4/26/11 14:09		243684	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1535
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/7/11 12:32
Sample Name:	LC34-IW0002D1-050.0-20110418	**Units:**	mg/L
Lab Code:	R1102105-013	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050711\C1656.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1220
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001E-052.5-20110418		
Lab Code:	R1102105-015	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**167**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	**1.2**		mg/L	1.0	10	NA	4/19/11 21:57	
Carbon, Total Organic (TOC), Average	9060	**3.3**		mg/L	1.0	1	NA	4/30/11 00:16	
Chloride	300.0	**600**		mg/L	40	200	NA	4/20/11 14:21	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 17:20	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 21:57	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/20/11 14:21	*
Sulfate	300.0	**94.9**		mg/L	2.0	10	NA	4/19/11 21:57	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1220
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001E-052.5-20110418 Dissolved		
Lab Code:	R1102105-016	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 21:04	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/27/11	4/30/11 21:04	
Manganese, Dissolved	6010C	16		µg/L	10	1	4/27/11	4/30/11 21:04	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1220
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001E-052.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
1,1,2,2-Tetrachloroethane	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
1,1,2-Trichloroethane	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1.6**	J	10	0.80	2	NA	4/22/11 15:50		243340	
1,1-Dichloroethane (1,1-DCA)	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
1,1-Dichloroethene (1,1-DCE)	**0.86**	J	10	0.74	2	NA	4/22/11 15:50		243340	
1,2,4-Trichlorobenzene	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	0.86	2	NA	4/22/11 15:50		243340	
1,2-Dibromoethane	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
1,2-Dichlorobenzene	10	U	10	0.80	2	NA	4/22/11 15:50		243340	
1,2-Dichloroethane	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
1,2-Dichloropropane	10	U	10	1.4	2	NA	4/22/11 15:50		243340	
1,3-Dichlorobenzene	10	U	10	0.72	2	NA	4/22/11 15:50		243340	
1,4-Dichlorobenzene	10	U	10	0.68	2	NA	4/22/11 15:50		243340	
n-Butanol	100	U	100	14	2	NA	4/22/11 15:50		243340	
2-Butanone (MEK)	20	U	20	2.0	2	NA	4/22/11 15:50		243340	
2-Hexanone	20	U	20	0.80	2	NA	4/22/11 15:50		243340	
4-Methyl-2-pentanone	20	U	20	0.68	2	NA	4/22/11 15:50		243340	
Acetone	40	U	40	3.2	2	NA	4/22/11 15:50		243340	
Benzene	10	U	10	0.62	2	NA	4/22/11 15:50		243340	
Bromodichloromethane	10	U	10	0.82	2	NA	4/22/11 15:50		243340	
Bromoform	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Bromomethane	10	U	10	0.80	2	NA	4/22/11 15:50		243340	
Carbon Disulfide	20	U	20	0.70	2	NA	4/22/11 15:50		243340	
Carbon Tetrachloride	10	U	10	0.72	2	NA	4/22/11 15:50		243340	
Chlorobenzene	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Chloroethane	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Chloroform	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Chloromethane	10	U	10	0.92	2	NA	4/22/11 15:50		243340	
Cyclohexane	20	U	20	0.60	2	NA	4/22/11 15:50		243340	
Dibromochloromethane	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Dichlorodifluoromethane (CFC 12)	10	U	10	1.5	2	NA	4/22/11 15:50		243340	
Dichloromethane	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Ethylbenzene	10	U	10	0.84	2	NA	4/22/11 15:50		243340	
Isopropylbenzene (Cumene)	10	U	10	0.68	2	NA	4/22/11 15:50		243340	
Methyl Acetate	20	U	20	1.4	2	NA	4/22/11 15:50		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1220
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001E-052.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Methylcyclohexane	20	U	20	0.60	2	NA	4/22/11 15:50		243340	
Styrene	10	U	10	0.70	2	NA	4/22/11 15:50		243340	
Tetrachloroethene (PCE)	10	U	10	0.84	2	NA	4/22/11 15:50		243340	
Toluene	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Trichloroethene (TCE)	**490**	D	25	1.5	5	NA	4/23/11 14:17		243343	
Trichlorofluoromethane (CFC 11)	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
Vinyl Chloride	**0.86**	J	10	0.60	2	NA	4/22/11 15:50		243340	
cis-1,2-Dichloroethene	**74**		10	0.60	2	NA	4/22/11 15:50		243340	
cis-1,3-Dichloropropene	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
m,p-Xylenes	10	U	10	1.7	2	NA	4/22/11 15:50		243340	
n-Butyl Acetate	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
o-Xylene	10	U	10	0.80	2	NA	4/22/11 15:50		243340	
trans-1,2-Dichloroethene	10	U	10	0.60	2	NA	4/22/11 15:50		243340	
trans-1,3-Dichloropropene	10	U	10	0.60	2	NA	4/22/11 15:50		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/22/11 15:50	
Dibromofluoromethane	110	89-119	4/22/11 15:50	
Toluene-d8	105	87-121	4/22/11 15:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1220
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001E-052.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-015	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 14:43		243684	
Ethene	1.0	U	1.0	1	NA	4/26/11 14:43		243684	
Methane	**6.8**		2.0	1	NA	4/26/11 14:43		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1220
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/7/11 14:34
Sample Name:	LC34-BW0001E-052.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-015	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050711\C1658.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1150
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001F-059.5-20110418		
Lab Code:	R1102105-017	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**166**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	**1.1**		mg/L	1.0	10	NA	4/19/11 22:37	
Carbon, Total Organic (TOC), Average	9060	**3.3**		mg/L	1.0	1	NA	4/30/11 00:52	
Chloride	300.0	**636**		mg/L	40	200	NA	4/20/11 14:35	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 17:33	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/19/11 22:37	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/20/11 14:35	*
Sulfate	300.0	**112**		mg/L	4.0	20	NA	4/22/11 04:45	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1150
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001F-059.5-20110418 Dissolved		
Lab Code:	R1102105-018	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 21:10	
Iron, Dissolved	6010C	**110**		µg/L	100	1	4/27/11	4/30/11 21:10	
Manganese, Dissolved	6010C	**13**		µg/L	10	1	4/27/11	4/30/11 21:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1150
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001F-059.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/21/11 17:41		243226	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/21/11 17:41		243226	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/21/11 17:41		243226	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/21/11 17:41		243226	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/21/11 17:41		243226	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/21/11 17:41		243226	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/21/11 17:41		243226	
n-Butanol	50	U	50	6.7	1	NA	4/21/11 17:41		243226	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/21/11 17:41		243226	
2-Hexanone	10	U	10	0.40	1	NA	4/21/11 17:41		243226	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/21/11 17:41		243226	
Acetone	20	U	20	1.6	1	NA	4/21/11 17:41		243226	
Benzene	5.0	U	5.0	0.31	1	NA	4/21/11 17:41		243226	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/21/11 17:41		243226	
Bromoform	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/21/11 17:41		243226	
Carbon Disulfide	10	U	10	0.35	1	NA	4/21/11 17:41		243226	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/21/11 17:41		243226	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Chloroform	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/21/11 17:41		243226	
Cyclohexane	10	U	10	0.30	1	NA	4/21/11 17:41		243226	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/21/11 17:41		243226	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/21/11 17:41		243226	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/21/11 17:41		243226	
Methyl Acetate	10	U	10	0.66	1	NA	4/21/11 17:41		243226	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1150
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001F-059.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Methylcyclohexane	10	U	10	0.30	1	NA	4/21/11 17:41		243226	
Styrene	5.0	U	5.0	0.35	1	NA	4/21/11 17:41		243226	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/21/11 17:41		243226	
Toluene	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Trichloroethene (TCE)	**1.1**	J	5.0	0.30	1	NA	4/21/11 17:41		243226	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
cis-1,2-Dichloroethene	**0.41**	J	5.0	0.30	1	NA	4/21/11 17:41		243226	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/21/11 17:41		243226	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/21/11 17:41		243226	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 17:41		243226	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	4/21/11 17:41	
Dibromofluoromethane	108	89-119	4/21/11 17:41	
Toluene-d8	111	87-121	4/21/11 17:41	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1150
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-BW0001F-059.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-017	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 15:08		243684	
Ethene	1.0	U	1.0	1	NA	4/26/11 15:08		243684	
Methane	**5.8**		2.0	1	NA	4/26/11 15:08		243684	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1150
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/7/11 16:37
Sample Name:	LC34-BW0001F-059.5-20110418	**Units:**	mg/L
Lab Code:	R1102105-017	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050711\C1660.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1435
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0076-075.0-20110418		
Lab Code:	R1102105-019	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/26/11 01:05	
Carbon, Total Organic (TOC), Average	9060	**3.3**		mg/L	1.0	1	NA	4/30/11 01:27	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 17:46	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1435
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0076-075.0-20110418 Dissolved		
Lab Code:	R1102105-020	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 21:16	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/27/11	4/30/11 21:16	
Manganese, Dissolved	6010C	**11**		µg/L	10	1	4/27/11	4/30/11 21:16	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1435
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0076-075.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/21/11 18:11		243226	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/21/11 18:11		243226	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/21/11 18:11		243226	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/21/11 18:11		243226	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/21/11 18:11		243226	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/21/11 18:11		243226	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/21/11 18:11		243226	
n-Butanol	50	U	50	6.7	1	NA	4/21/11 18:11		243226	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/21/11 18:11		243226	
2-Hexanone	10	U	10	0.40	1	NA	4/21/11 18:11		243226	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/21/11 18:11		243226	
Acetone	20	U	20	1.6	1	NA	4/21/11 18:11		243226	
Benzene	5.0	U	5.0	0.31	1	NA	4/21/11 18:11		243226	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/21/11 18:11		243226	
Bromoform	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/21/11 18:11		243226	
Carbon Disulfide	10	U	10	0.35	1	NA	4/21/11 18:11		243226	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/21/11 18:11		243226	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Chloroform	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/21/11 18:11		243226	
Cyclohexane	10	U	10	0.30	1	NA	4/21/11 18:11		243226	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/21/11 18:11		243226	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/21/11 18:11		243226	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/21/11 18:11		243226	
Methyl Acetate	10	U	10	0.66	1	NA	4/21/11 18:11		243226	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1435
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0076-075.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Methylcyclohexane	10	U	10	0.30	1	NA	4/21/11 18:11		243226	
Styrene	5.0	U	5.0	0.35	1	NA	4/21/11 18:11		243226	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/21/11 18:11		243226	
Toluene	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/21/11 18:11		243226	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/21/11 18:11		243226	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 18:11		243226	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	4/21/11 18:11	
Dibromofluoromethane	109	89-119	4/21/11 18:11	
Toluene-d8	110	87-121	4/21/11 18:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1435
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0076-075.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-019	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 15:28		243684	
Ethene	1.0	U	1.0	1	NA	4/26/11 15:28		243684	
Methane	**5.8**		2.0	1	NA	4/26/11 15:28		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1435
Sample Matrix:	Water	**Date Received:**	4/19/11
		Date Analyzed:	5/7/11 18:40
Sample Name:	LC34-IW0076-075.0-20110418	**Units:**	mg/L
Lab Code:	R1102105-019	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050711\C1662.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1132
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0067D-040.5-20110418		
Lab Code:	R1102105-021	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**3.6**		mg/L	1.0	1	NA	4/30/11 02:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1132
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0067D-040.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/21/11 18:42		243226	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/21/11 18:42		243226	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/21/11 18:42		243226	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/21/11 18:42		243226	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/21/11 18:42		243226	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/21/11 18:42		243226	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/21/11 18:42		243226	
n-Butanol	50	U	50	6.7	1	NA	4/21/11 18:42		243226	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/21/11 18:42		243226	
2-Hexanone	10	U	10	0.40	1	NA	4/21/11 18:42		243226	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/21/11 18:42		243226	
Acetone	20	U	20	1.6	1	NA	4/21/11 18:42		243226	
Benzene	5.0	U	5.0	0.31	1	NA	4/21/11 18:42		243226	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/21/11 18:42		243226	
Bromoform	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/21/11 18:42		243226	
Carbon Disulfide	10	U	10	0.35	1	NA	4/21/11 18:42		243226	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/21/11 18:42		243226	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Chloroform	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/21/11 18:42		243226	
Cyclohexane	10	U	10	0.30	1	NA	4/21/11 18:42		243226	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/21/11 18:42		243226	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/21/11 18:42		243226	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/21/11 18:42		243226	
Methyl Acetate	10	U	10	0.66	1	NA	4/21/11 18:42		243226	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1132
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0067D-040.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Methylcyclohexane	10	U	10	0.30	1	NA	4/21/11 18:42		243226	
Styrene	5.0	U	5.0	0.35	1	NA	4/21/11 18:42		243226	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/21/11 18:42		243226	
Toluene	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
Vinyl Chloride	**1.1**	J	5.0	0.30	1	NA	4/21/11 18:42		243226	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/21/11 18:42		243226	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/21/11 18:42		243226	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 18:42		243226	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	4/21/11 18:42	
Dibromofluoromethane	109	89-119	4/21/11 18:42	
Toluene-d8	112	87-121	4/21/11 18:42	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1219
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0067D1-068.0-20110418		
Lab Code:	R1102105-022	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**3.3**		mg/L	1.0	1	NA	4/30/11 03:13	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1219
Date Received: 4/19/11

Sample Name: LC34-IW0067D1-068.0-20110418
Lab Code: R1102105-022

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/21/11 19:12		243226	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/21/11 19:12		243226	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/21/11 19:12		243226	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/21/11 19:12		243226	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/21/11 19:12		243226	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/21/11 19:12		243226	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/21/11 19:12		243226	
n-Butanol	50	U	50	6.7	1	NA	4/21/11 19:12		243226	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/21/11 19:12		243226	
2-Hexanone	10	U	10	0.40	1	NA	4/21/11 19:12		243226	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/21/11 19:12		243226	
Acetone	20	U	20	1.6	1	NA	4/21/11 19:12		243226	
Benzene	5.0	U	5.0	0.31	1	NA	4/21/11 19:12		243226	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/21/11 19:12		243226	
Bromoform	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/21/11 19:12		243226	
Carbon Disulfide	10	U	10	0.35	1	NA	4/21/11 19:12		243226	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/21/11 19:12		243226	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Chloroform	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/21/11 19:12		243226	
Cyclohexane	10	U	10	0.30	1	NA	4/21/11 19:12		243226	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/21/11 19:12		243226	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/21/11 19:12		243226	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/21/11 19:12		243226	
Methyl Acetate	10	U	10	0.66	1	NA	4/21/11 19:12		243226	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1219
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0067D1-068.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Methylcyclohexane	10	U	10	0.30	1	NA	4/21/11 19:12		243226	
Styrene	5.0	U	5.0	0.35	1	NA	4/21/11 19:12		243226	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/21/11 19:12		243226	
Toluene	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/21/11 19:12		243226	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/21/11 19:12		243226	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 19:12		243226	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	4/21/11 19:12	
Dibromofluoromethane	107	89-119	4/21/11 19:12	
Toluene-d8	110	87-121	4/21/11 19:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1021
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0070D-040.5-20110418		
Lab Code:	R1102105-023	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**4.1**		mg/L	1.0	1	NA	4/30/11 03:49	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1021
Date Received: 4/19/11

Sample Name: LC34-IW0070D-040.5-20110418
Lab Code: R1102105-023

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/21/11 19:42		243226	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/21/11 19:42		243226	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/21/11 19:42		243226	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/21/11 19:42		243226	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/21/11 19:42		243226	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/21/11 19:42		243226	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/21/11 19:42		243226	
n-Butanol	50	U	50	6.7	1	NA	4/21/11 19:42		243226	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/21/11 19:42		243226	
2-Hexanone	10	U	10	0.40	1	NA	4/21/11 19:42		243226	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/21/11 19:42		243226	
Acetone	20	U	20	1.6	1	NA	4/21/11 19:42		243226	
Benzene	5.0	U	5.0	0.31	1	NA	4/21/11 19:42		243226	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/21/11 19:42		243226	
Bromoform	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/21/11 19:42		243226	
Carbon Disulfide	10	U	10	0.35	1	NA	4/21/11 19:42		243226	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/21/11 19:42		243226	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Chloroform	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/21/11 19:42		243226	
Cyclohexane	10	U	10	0.30	1	NA	4/21/11 19:42		243226	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/21/11 19:42		243226	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/21/11 19:42		243226	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/21/11 19:42		243226	
Methyl Acetate	10	U	10	0.66	1	NA	4/21/11 19:42		243226	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1021
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0070D-040.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Methylcyclohexane	10	U	10	0.30	1	NA	4/21/11 19:42		243226	
Styrene	5.0	U	5.0	0.35	1	NA	4/21/11 19:42		243226	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/21/11 19:42		243226	
Toluene	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/21/11 19:42		243226	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/21/11 19:42		243226	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 19:42		243226	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	111	85-122	4/21/11 19:42	
Dibromofluoromethane	111	89-119	4/21/11 19:42	
Toluene-d8	112	87-121	4/21/11 19:42	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1056
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0070D1-070.0-20110418		
Lab Code:	R1102105-024	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**3.2**		mg/L	1.0	1	NA	4/30/11 04:24	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Collected: 4/18/11 1056
Date Received: 4/19/11

Sample Name: LC34-IW0070D1-070.0-20110418
Lab Code: R1102105-024

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 16:17		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 16:17		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 16:17		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 16:17		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 16:17		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 16:17		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 16:17		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 16:17		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 16:17		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 16:17		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 16:17		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 16:17		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 16:17		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 16:17		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 16:17		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 16:17		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 16:17		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 16:17		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 16:17		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 16:17		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 16:17		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 16:17		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 16:17		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1056
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0070D1-070.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 16:17		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 16:17		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 16:17		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 16:17		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 16:17		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 16:17		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	113	85-122	4/22/11 16:17	
Dibromofluoromethane	112	89-119	4/22/11 16:17	
Toluene-d8	108	87-121	4/22/11 16:17	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1356
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0071D-040.5-20110418		
Lab Code:	R1102105-025	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**3.6**		mg/L	1.0	1	NA	4/30/11 06:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1356
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0071D-040.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 16:45		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 16:45		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 16:45		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 16:45		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 16:45		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 16:45		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 16:45		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 16:45		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 16:45		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 16:45		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 16:45		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 16:45		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 16:45		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 16:45		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 16:45		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 16:45		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 16:45		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 16:45		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 16:45		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 16:45		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 16:45		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 16:45		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 16:45		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1356
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0071D-040.5-20110418	**Units:**	µg/L
Lab Code:	R1102105-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 16:45		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 16:45		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 16:45		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 16:45		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 16:45		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 16:45		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	4/22/11 16:45	
Dibromofluoromethane	108	89-119	4/22/11 16:45	
Toluene-d8	105	87-121	4/22/11 16:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1423
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0071D1-070.0-20110418		
Lab Code:	R1102105-026	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**3.3**		mg/L	1.0	1	NA	4/30/11 07:21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1423
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0071D1-070.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 17:12		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 17:12		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 17:12		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 17:12		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 17:12		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 17:12		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 17:12		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 17:12		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 17:12		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 17:12		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 17:12		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 17:12		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 17:12		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 17:12		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 17:12		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 17:12		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 17:12		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 17:12		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 17:12		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 17:12		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 17:12		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 17:12		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 17:12		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1423
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-IW0071D1-070.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 17:12		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 17:12		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 17:12		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 17:12		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 17:12		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 17:12		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	4/22/11 17:12	
Dibromofluoromethane	108	89-119	4/22/11 17:12	
Toluene-d8	107	87-121	4/22/11 17:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1525
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-EF0005-000.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 17:39		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 17:39		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 17:39		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 17:39		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 17:39		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 17:39		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 17:39		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 17:39		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 17:39		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 17:39		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 17:39		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 17:39		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 17:39		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 17:39		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 17:39		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 17:39		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 17:39		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 17:39		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 17:39		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 17:39		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 17:39		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 17:39		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 17:39		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1525
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-EF0005-000.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 17:39		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 17:39		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 17:39		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 17:39		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 17:39		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 17:39		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	4/22/11 17:39	
Dibromofluoromethane	107	89-119	4/22/11 17:39	
Toluene-d8	104	87-121	4/22/11 17:39	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1525
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-EF0006.000.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 18:06		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 18:06		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 18:06		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 18:06		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 18:06		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 18:06		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 18:06		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 18:06		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 18:06		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 18:06		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 18:06		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 18:06		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 18:06		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 18:06		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 18:06		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 18:06		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 18:06		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 18:06		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 18:06		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 18:06		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 18:06		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 18:06		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 18:06		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11 1525
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-EF0006.000.0-20110418	**Units:**	µg/L
Lab Code:	R1102105-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 18:06		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 18:06		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 18:06		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 18:06		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 18:06		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 18:06		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	4/22/11 18:06	
Dibromofluoromethane	106	89-119	4/22/11 18:06	
Toluene-d8	105	87-121	4/22/11 18:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-TB-20110418-01	**Units:**	µg/L
Lab Code:	R1102105-029	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 18:33		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 18:33		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 18:33		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 18:33		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 18:33		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 18:33		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 18:33		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 18:33		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 18:33		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 18:33		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 18:33		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 18:33		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 18:33		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 18:33		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 18:33		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 18:33		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 18:33		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 18:33		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 18:33		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 18:33		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 18:33		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 18:33		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 18:33		243340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/18/11
Sample Matrix:	Water	**Date Received:**	4/19/11
Sample Name:	LC34-TB-20110418-01	**Units:**	µg/L
Lab Code:	R1102105-029	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 18:33		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 18:33		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 18:33		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 18:33		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 18:33		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 18:33		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/22/11 18:33	
Dibromofluoromethane	110	89-119	4/22/11 18:33	
Toluene-d8	107	87-121	4/22/11 18:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419		
Lab Code:	R1102105-030	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**223**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	**1.5**		mg/L	1.0	10	NA	4/20/11 17:54	
Carbon, Total Organic (TOC), Average	9060	**4.4**		mg/L	1.0	1	NA	4/30/11 07:56	
Chloride	300.0	**642**		mg/L	40	200	NA	4/21/11 11:43	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 18:00	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 17:54	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/21/11 11:43	*
Sulfate	300.0	**61.2**		mg/L	2.0	10	NA	4/20/11 17:54	
Sulfide, Total	SM 4500-S2- F	**1.0**		mg/L	1.0	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419 Dissolved		
Lab Code:	R1102105-031	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 21:21	
Iron, Dissolved	6010C	**120**		µg/L	100	1	4/27/11	4/30/11 21:21	
Manganese, Dissolved	6010C	**10**		µg/L	10	1	4/27/11	4/30/11 21:21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-030	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	**8500**		1300	100	250	NA	4/22/11 19:00		243340	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	4/22/11 19:00		243340	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/22/11 19:00		243340	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/22/11 19:00		243340	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/22/11 19:00		243340	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/22/11 19:00		243340	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/22/11 19:00		243340	
n-Butanol	13000	U	13000	1700	250	NA	4/22/11 19:00		243340	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/22/11 19:00		243340	
2-Hexanone	2500	U	2500	100	250	NA	4/22/11 19:00		243340	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/22/11 19:00		243340	
Acetone	5000	U	5000	400	250	NA	4/22/11 19:00		243340	
Benzene	1300	U	1300	78	250	NA	4/22/11 19:00		243340	
Bromodichloromethane	1300	U	1300	110	250	NA	4/22/11 19:00		243340	
Bromoform	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Bromomethane	1300	U	1300	100	250	NA	4/22/11 19:00		243340	
Carbon Disulfide	2500	U	2500	88	250	NA	4/22/11 19:00		243340	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/22/11 19:00		243340	
Chlorobenzene	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Chloroethane	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Chloroform	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Chloromethane	1300	U	1300	120	250	NA	4/22/11 19:00		243340	
Cyclohexane	2500	U	2500	75	250	NA	4/22/11 19:00		243340	
Dibromochloromethane	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/22/11 19:00		243340	
Dichloromethane	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Ethylbenzene	1300	U	1300	110	250	NA	4/22/11 19:00		243340	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/22/11 19:00		243340	
Methyl Acetate	2500	U	2500	170	250	NA	4/22/11 19:00		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-030	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Methylcyclohexane	2500	U	2500	75	250	NA	4/22/11 19:00		243340	
Styrene	1300	U	1300	88	250	NA	4/22/11 19:00		243340	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/22/11 19:00		243340	
Toluene	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Trichloroethene (TCE)	**12000**		1300	75	250	NA	4/22/11 19:00		243340	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
Vinyl Chloride	**990**	J	1300	75	250	NA	4/22/11 19:00		243340	
cis-1,2-Dichloroethene	**25000**		1300	75	250	NA	4/22/11 19:00		243340	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
m,p-Xylenes	1300	U	1300	210	250	NA	4/22/11 19:00		243340	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/22/11 19:00		243340	
o-Xylene	1300	U	1300	100	250	NA	4/22/11 19:00		243340	
trans-1,2-Dichloroethene	**170**	J	1300	75	250	NA	4/22/11 19:00		243340	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/22/11 19:00		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	4/22/11 19:00	
Dibromofluoromethane	106	89-119	4/22/11 19:00	
Toluene-d8	104	87-121	4/22/11 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-030	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 15:43		243684	
Ethene	**11**		1.0	1	NA	4/26/11 15:43		243684	
Methane	**47**		2.0	1	NA	4/26/11 15:43		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/8/11 02:59
Sample Name:	LC34-RW0007-038.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-030	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050711\C1670.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**22**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419-D		
Lab Code:	R1102105-032	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**221**		mg/L	2.0	1	NA	4/26/11 10:24	
Carbon, Total Organic (TOC), Average	9060	**4.5**		mg/L	1.0	1	NA	4/30/11 08:31	
Chloride	300.0	**645**		mg/L	40	200	NA	4/21/11 11:56	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 18:07	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/21/11 11:56	*
Sulfate	300.0	**60.5**		mg/L	2.0	10	NA	4/20/11 18:07	
Sulfide, Total	SM 4500-S2- F	0.98	U	mg/L	0.98	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419-D Dissolved		
Lab Code:	R1102105-033	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/21/11	4/27/11 00:14	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/21/11	4/27/11 00:14	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	4/21/11	4/27/11 00:14	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419-D	**Units:**	µg/L
Lab Code:	R1102105-032	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243343

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
1,1,2,2-Tetrachloroethane	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
1,1,2-Trichloroethane	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
1,1,2-Trichloro-1,2,2-trifluoroethane	**8700**		1000	80	200	NA	4/23/11 15:11		243343	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	200	NA	4/23/11 15:11		243343	
1,2,4-Trichlorobenzene	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	200	NA	4/23/11 15:11		243343	
1,2-Dibromoethane	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
1,2-Dichlorobenzene	1000	U	1000	80	200	NA	4/23/11 15:11		243343	
1,2-Dichloroethane	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
1,2-Dichloropropane	1000	U	1000	140	200	NA	4/23/11 15:11		243343	
1,3-Dichlorobenzene	1000	U	1000	72	200	NA	4/23/11 15:11		243343	
1,4-Dichlorobenzene	1000	U	1000	68	200	NA	4/23/11 15:11		243343	
n-Butanol	10000	U	10000	1400	200	NA	4/23/11 15:11		243343	
2-Butanone (MEK)	2000	U	2000	200	200	NA	4/23/11 15:11		243343	
2-Hexanone	2000	U	2000	80	200	NA	4/23/11 15:11		243343	
4-Methyl-2-pentanone	2000	U	2000	68	200	NA	4/23/11 15:11		243343	
Acetone	4000	U	4000	320	200	NA	4/23/11 15:11		243343	
Benzene	1000	U	1000	62	200	NA	4/23/11 15:11		243343	
Bromodichloromethane	1000	U	1000	82	200	NA	4/23/11 15:11		243343	
Bromoform	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Bromomethane	1000	U	1000	80	200	NA	4/23/11 15:11		243343	
Carbon Disulfide	2000	U	2000	70	200	NA	4/23/11 15:11		243343	
Carbon Tetrachloride	1000	U	1000	72	200	NA	4/23/11 15:11		243343	
Chlorobenzene	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Chloroethane	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Chloroform	**100**	J	1000	60	200	NA	4/23/11 15:11		243343	
Chloromethane	1000	U	1000	92	200	NA	4/23/11 15:11		243343	
Cyclohexane	2000	U	2000	60	200	NA	4/23/11 15:11		243343	
Dibromochloromethane	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	200	NA	4/23/11 15:11		243343	
Dichloromethane	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Ethylbenzene	1000	U	1000	84	200	NA	4/23/11 15:11		243343	
Isopropylbenzene (Cumene)	1000	U	1000	68	200	NA	4/23/11 15:11		243343	
Methyl Acetate	2000	U	2000	140	200	NA	4/23/11 15:11		243343	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419-D	**Units:**	µg/L
Lab Code:	R1102105-032	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243343

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Methylcyclohexane	2000	U	2000	60	200	NA	4/23/11 15:11		243343	
Styrene	1000	U	1000	70	200	NA	4/23/11 15:11		243343	
Tetrachloroethene (PCE)	1000	U	1000	84	200	NA	4/23/11 15:11		243343	
Toluene	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Trichloroethene (TCE)	**12000**		1000	60	200	NA	4/23/11 15:11		243343	
Trichlorofluoromethane (CFC 11)	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
Vinyl Chloride	**900**	J	1000	60	200	NA	4/23/11 15:11		243343	
cis-1,2-Dichloroethene	**23000**		1000	60	200	NA	4/23/11 15:11		243343	
cis-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
m,p-Xylenes	1000	U	1000	170	200	NA	4/23/11 15:11		243343	
n-Butyl Acetate	1000	U	1000	60	200	NA	4/23/11 15:11		243343	
o-Xylene	1000	U	1000	80	200	NA	4/23/11 15:11		243343	
trans-1,2-Dichloroethene	**160**	J	1000	60	200	NA	4/23/11 15:11		243343	
trans-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/23/11 15:11		243343	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/23/11 15:11	
Dibromofluoromethane	110	89-119	4/23/11 15:11	
Toluene-d8	105	87-121	4/23/11 15:11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0007-038.5-20110419-D	**Units:**	µg/L
Lab Code:	R1102105-032	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 15:55		243684	
Ethene	**11**		1.0	1	NA	4/26/11 15:55		243684	
Methane	**47**		2.0	1	NA	4/26/11 15:55		243684	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0917
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/9/11 10:54
Sample Name:	LC34-RW0007-038.5-20110419-D	**Units:**	mg/L
Lab Code:	R1102105-032	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\C1683.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**22**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Sample Name: LC34-RW0008-038.5-20110419
Lab Code: R1102105-034

Service Request: R1102105
Date Collected: 4/19/11 1027
Date Received: 4/20/11

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**173**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	**1.7**		mg/L	1.0	10	NA	4/20/11 18:47	
Carbon, Total Organic (TOC), Average	9060	**3.4**		mg/L	1.0	1	NA	4/30/11 09:07	
Chloride	300.0	**675**		mg/L	40	200	NA	4/21/11 12:09	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 18:39	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 18:47	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/21/11 12:09	*
Sulfate	300.0	**92.4**		mg/L	2.0	10	NA	4/21/11 13:03	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1027
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0008-038.5-20110419 Dissolved		
Lab Code:	R1102105-035	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 21:27	
Iron, Dissolved	6010C	**120**		µg/L	100	1	4/27/11	4/30/11 21:27	
Manganese, Dissolved	6010C	**15**		µg/L	10	1	4/27/11	4/30/11 21:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1027
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0008-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-034	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243441

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
1,1,2,2-Tetrachloroethane	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
1,1,2-Trichloroethane	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
1,1,2-Trichloro-1,2,2-trifluoroethane	160		50	4.0	10	NA	4/25/11 10:59		243441	
1,1-Dichloroethane (1,1-DCA)	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
1,1-Dichloroethene (1,1-DCE)	50	U	50	3.7	10	NA	4/25/11 10:59		243441	
1,2,4-Trichlorobenzene	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	4.3	10	NA	4/25/11 10:59		243441	
1,2-Dibromoethane	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
1,2-Dichlorobenzene	50	U	50	4.0	10	NA	4/25/11 10:59		243441	
1,2-Dichloroethane	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
1,2-Dichloropropane	50	U	50	6.7	10	NA	4/25/11 10:59		243441	
1,3-Dichlorobenzene	50	U	50	3.6	10	NA	4/25/11 10:59		243441	
1,4-Dichlorobenzene	50	U	50	3.5	10	NA	4/25/11 10:59		243441	
n-Butanol	500	U	500	67	10	NA	4/25/11 10:59		243441	
2-Butanone (MEK)	100	U	100	10	10	NA	4/25/11 10:59		243441	
2-Hexanone	100	U	100	4.0	10	NA	4/25/11 10:59		243441	
4-Methyl-2-pentanone	100	U	100	3.5	10	NA	4/25/11 10:59		243441	
Acetone	200	U	200	16	10	NA	4/25/11 10:59		243441	
Benzene	50	U	50	3.1	10	NA	4/25/11 10:59		243441	
Bromodichloromethane	50	U	50	4.1	10	NA	4/25/11 10:59		243441	
Bromoform	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Bromomethane	50	U	50	4.0	10	NA	4/25/11 10:59		243441	
Carbon Disulfide	100	U	100	3.5	10	NA	4/25/11 10:59		243441	
Carbon Tetrachloride	50	U	50	3.6	10	NA	4/25/11 10:59		243441	
Chlorobenzene	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Chloroethane	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Chloroform	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Chloromethane	50	U	50	4.7	10	NA	4/25/11 10:59		243441	
Cyclohexane	100	U	100	3.0	10	NA	4/25/11 10:59		243441	
Dibromochloromethane	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Dichlorodifluoromethane (CFC 12)	50	U	50	7.3	10	NA	4/25/11 10:59		243441	
Dichloromethane	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Ethylbenzene	50	U	50	4.2	10	NA	4/25/11 10:59		243441	
Isopropylbenzene (Cumene)	50	U	50	3.5	10	NA	4/25/11 10:59		243441	
Methyl Acetate	100	U	100	6.7	10	NA	4/25/11 10:59		243441	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1027
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0008-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-034	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243441

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Methylcyclohexane	100	U	100	3.0	10	NA	4/25/11 10:59		243441	
Styrene	50	U	50	3.5	10	NA	4/25/11 10:59		243441	
Tetrachloroethene (PCE)	50	U	50	4.2	10	NA	4/25/11 10:59		243441	
Toluene	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Trichloroethene (TCE)	**1000**		50	3.0	10	NA	4/25/11 10:59		243441	
Trichlorofluoromethane (CFC 11)	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
Vinyl Chloride	**24**	J	50	3.0	10	NA	4/25/11 10:59		243441	
cis-1,2-Dichloroethene	**510**		50	3.0	10	NA	4/25/11 10:59		243441	
cis-1,3-Dichloropropene	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
m,p-Xylenes	50	U	50	8.2	10	NA	4/25/11 10:59		243441	
n-Butyl Acetate	50	U	50	3.0	10	NA	4/25/11 10:59		243441	
o-Xylene	50	U	50	4.0	10	NA	4/25/11 10:59		243441	
trans-1,2-Dichloroethene	**3.0**	J	50	3.0	10	NA	4/25/11 10:59		243441	
trans-1,3-Dichloropropene	50	U	50	3.0	10	NA	4/25/11 10:59		243441	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	4/25/11 10:59	
Dibromofluoromethane	109	89-119	4/25/11 10:59	
Toluene-d8	107	87-121	4/25/11 10:59	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1027
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0008-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-034	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 16:31		243684	
Ethene	1.0	U	1.0	1	NA	4/26/11 16:31		243684	
Methane	**8.8**		2.0	1	NA	4/26/11 16:31		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1027
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/9/11 12:57
Sample Name:	LC34-RW0008-038.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-034	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\C1685.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**1.0**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Sample Name: LC34-RW0008-038.5-20110419-D
Lab Code: R1102105-036

Service Request: R1102105
Date Collected: 4/19/11 1027
Date Received: 4/20/11

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243441

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
1,1,2,2-Tetrachloroethane	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
1,1,2-Trichloroethane	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
1,1,2-Trichloro-1,2,2-trifluoroethane	**180**		50	4.0	10	NA	4/25/11 11:27		243441	
1,1-Dichloroethane (1,1-DCA)	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
1,1-Dichloroethene (1,1-DCE)	50	U	50	3.7	10	NA	4/25/11 11:27		243441	
1,2,4-Trichlorobenzene	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	4.3	10	NA	4/25/11 11:27		243441	
1,2-Dibromoethane	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
1,2-Dichlorobenzene	50	U	50	4.0	10	NA	4/25/11 11:27		243441	
1,2-Dichloroethane	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
1,2-Dichloropropane	50	U	50	6.7	10	NA	4/25/11 11:27		243441	
1,3-Dichlorobenzene	50	U	50	3.6	10	NA	4/25/11 11:27		243441	
1,4-Dichlorobenzene	50	U	50	3.5	10	NA	4/25/11 11:27		243441	
n-Butanol	500	U	500	67	10	NA	4/25/11 11:27		243441	
2-Butanone (MEK)	100	U	100	10	10	NA	4/25/11 11:27		243441	
2-Hexanone	100	U	100	4.0	10	NA	4/25/11 11:27		243441	
4-Methyl-2-pentanone	100	U	100	3.5	10	NA	4/25/11 11:27		243441	
Acetone	200	U	200	16	10	NA	4/25/11 11:27		243441	
Benzene	50	U	50	3.1	10	NA	4/25/11 11:27		243441	
Bromodichloromethane	50	U	50	4.1	10	NA	4/25/11 11:27		243441	
Bromoform	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Bromomethane	50	U	50	4.0	10	NA	4/25/11 11:27		243441	
Carbon Disulfide	100	U	100	3.5	10	NA	4/25/11 11:27		243441	
Carbon Tetrachloride	50	U	50	3.6	10	NA	4/25/11 11:27		243441	
Chlorobenzene	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Chloroethane	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Chloroform	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Chloromethane	50	U	50	4.7	10	NA	4/25/11 11:27		243441	
Cyclohexane	100	U	100	3.0	10	NA	4/25/11 11:27		243441	
Dibromochloromethane	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Dichlorodifluoromethane (CFC 12)	50	U	50	7.3	10	NA	4/25/11 11:27		243441	
Dichloromethane	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Ethylbenzene	50	U	50	4.2	10	NA	4/25/11 11:27		243441	
Isopropylbenzene (Cumene)	50	U	50	3.5	10	NA	4/25/11 11:27		243441	
Methyl Acetate	100	U	100	6.7	10	NA	4/25/11 11:27		243441	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1027
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-RW0008-038.5-20110419-D	**Units:**	µg/L
Lab Code:	R1102105-036	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243441

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Methylcyclohexane	100	U	100	3.0	10	NA	4/25/11 11:27		243441	
Styrene	50	U	50	3.5	10	NA	4/25/11 11:27		243441	
Tetrachloroethene (PCE)	50	U	50	4.2	10	NA	4/25/11 11:27		243441	
Toluene	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Trichloroethene (TCE)	**1100**		50	3.0	10	NA	4/25/11 11:27		243441	
Trichlorofluoromethane (CFC 11)	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
Vinyl Chloride	**23**	J	50	3.0	10	NA	4/25/11 11:27		243441	
cis-1,2-Dichloroethene	**500**		50	3.0	10	NA	4/25/11 11:27		243441	
cis-1,3-Dichloropropene	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
m,p-Xylenes	50	U	50	8.2	10	NA	4/25/11 11:27		243441	
n-Butyl Acetate	50	U	50	3.0	10	NA	4/25/11 11:27		243441	
o-Xylene	50	U	50	4.0	10	NA	4/25/11 11:27		243441	
trans-1,2-Dichloroethene	**3.3**	J	50	3.0	10	NA	4/25/11 11:27		243441	
trans-1,3-Dichloropropene	50	U	50	3.0	10	NA	4/25/11 11:27		243441	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	111	85-122	4/25/11 11:27	
Dibromofluoromethane	111	89-119	4/25/11 11:27	
Toluene-d8	108	87-121	4/25/11 11:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0915
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002A-024.5-20110419		
Lab Code:	R1102105-037	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/27/11 01:16	
Carbon, Total Organic (TOC), Average	9060	**3.0**		mg/L	1.0	1	NA	4/30/11 09:42	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 18:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0915
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002A-024.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-037	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		1300	100	250	NA	4/26/11 14:49		243491	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	4/26/11 14:49		243491	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/26/11 14:49		243491	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/26/11 14:49		243491	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/26/11 14:49		243491	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/26/11 14:49		243491	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/26/11 14:49		243491	
n-Butanol	13000	U	13000	1700	250	NA	4/26/11 14:49		243491	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/26/11 14:49		243491	
2-Hexanone	2500	U	2500	100	250	NA	4/26/11 14:49		243491	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/26/11 14:49		243491	
Acetone	5000	U	5000	400	250	NA	4/26/11 14:49		243491	
Benzene	1300	U	1300	78	250	NA	4/26/11 14:49		243491	
Bromodichloromethane	1300	U	1300	110	250	NA	4/26/11 14:49		243491	
Bromoform	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Bromomethane	1300	U	1300	100	250	NA	4/26/11 14:49		243491	
Carbon Disulfide	2500	U	2500	88	250	NA	4/26/11 14:49		243491	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/26/11 14:49		243491	
Chlorobenzene	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Chloroethane	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Chloroform	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Chloromethane	1300	U	1300	120	250	NA	4/26/11 14:49		243491	
Cyclohexane	2500	U	2500	75	250	NA	4/26/11 14:49		243491	
Dibromochloromethane	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/26/11 14:49		243491	
Dichloromethane	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Ethylbenzene	1300	U	1300	110	250	NA	4/26/11 14:49		243491	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/26/11 14:49		243491	
Methyl Acetate	2500	U	2500	170	250	NA	4/26/11 14:49		243491	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0915
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002A-024.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-037	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Methylcyclohexane	2500	U	2500	75	250	NA	4/26/11 14:49		243491	
Styrene	1300	U	1300	88	250	NA	4/26/11 14:49		243491	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/26/11 14:49		243491	
Toluene	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Trichloroethene (TCE)	**140**	J	1300	75	250	NA	4/26/11 14:49		243491	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
Vinyl Chloride	**1900**		1300	75	250	NA	4/26/11 14:49		243491	
cis-1,2-Dichloroethene	**41000**		1300	75	250	NA	4/26/11 14:49		243491	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
m,p-Xylenes	1300	U	1300	210	250	NA	4/26/11 14:49		243491	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/26/11 14:49		243491	
o-Xylene	1300	U	1300	100	250	NA	4/26/11 14:49		243491	
trans-1,2-Dichloroethene	**820**	J	1300	75	250	NA	4/26/11 14:49		243491	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/26/11 14:49		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/26/11 14:49	
Dibromofluoromethane	106	89-119	4/26/11 14:49	
Toluene-d8	103	87-121	4/26/11 14:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0915
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002A-024.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-037	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 12:13		243805	
Ethene	**33**		1.0	1	NA	4/27/11 12:13		243805	
Methane	**75**		2.0	1	NA	4/27/11 12:13		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 0915
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/9/11 15:02
Sample Name:	LC34-BW0002A-024.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-037	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\C1687.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**2.4**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1020
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002B-031.5-20110419		
Lab Code:	R1102105-038	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/26/11 01:18	
Carbon, Total Organic (TOC), Average	9060	4.1		mg/L	1.0	1	NA	4/30/11 10:17	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 19:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1020
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002B-031.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-038	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243343

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
1,1,2-Trichloro-1,2,2-trifluoroethane	**24000**		1300	100	250	NA	4/23/11 14:44		243343	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	4/23/11 14:44		243343	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/23/11 14:44		243343	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/23/11 14:44		243343	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/23/11 14:44		243343	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/23/11 14:44		243343	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/23/11 14:44		243343	
n-Butanol	13000	U	13000	1700	250	NA	4/23/11 14:44		243343	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/23/11 14:44		243343	
2-Hexanone	2500	U	2500	100	250	NA	4/23/11 14:44		243343	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/23/11 14:44		243343	
Acetone	**1900**	J	5000	400	250	NA	4/23/11 14:44		243343	
Benzene	1300	U	1300	78	250	NA	4/23/11 14:44		243343	
Bromodichloromethane	1300	U	1300	110	250	NA	4/23/11 14:44		243343	
Bromoform	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Bromomethane	1300	U	1300	100	250	NA	4/23/11 14:44		243343	
Carbon Disulfide	2500	U	2500	88	250	NA	4/23/11 14:44		243343	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/23/11 14:44		243343	
Chlorobenzene	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Chloroethane	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Chloroform	**250**	J	1300	75	250	NA	4/23/11 14:44		243343	
Chloromethane	1300	U	1300	120	250	NA	4/23/11 14:44		243343	
Cyclohexane	2500	U	2500	75	250	NA	4/23/11 14:44		243343	
Dibromochloromethane	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/23/11 14:44		243343	
Dichloromethane	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Ethylbenzene	1300	U	1300	110	250	NA	4/23/11 14:44		243343	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/23/11 14:44		243343	
Methyl Acetate	2500	U	2500	170	250	NA	4/23/11 14:44		243343	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1020
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002B-031.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-038	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243343

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Methylcyclohexane	2500	U	2500	75	250	NA	4/23/11 14:44		243343	
Styrene	1300	U	1300	88	250	NA	4/23/11 14:44		243343	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/23/11 14:44		243343	
Toluene	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Trichloroethene (TCE)	**1100**	J	1300	75	250	NA	4/23/11 14:44		243343	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
Vinyl Chloride	**750**	J	1300	75	250	NA	4/23/11 14:44		243343	
cis-1,2-Dichloroethene	**48000**		1300	75	250	NA	4/23/11 14:44		243343	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
m,p-Xylenes	1300	U	1300	210	250	NA	4/23/11 14:44		243343	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/23/11 14:44		243343	
o-Xylene	1300	U	1300	100	250	NA	4/23/11 14:44		243343	
trans-1,2-Dichloroethene	**850**	J	1300	75	250	NA	4/23/11 14:44		243343	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/23/11 14:44		243343	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	4/23/11 14:44	
Dibromofluoromethane	110	89-119	4/23/11 14:44	
Toluene-d8	106	87-121	4/23/11 14:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1020
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002B-031.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-038	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 12:24		243805	
Ethene	**12**		1.0	1	NA	4/27/11 12:24		243805	
Methane	**93**		2.0	1	NA	4/27/11 12:24		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1020
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/9/11 22:44
Sample Name:	LC34-BW0002B-031.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-038	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1690.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**18**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1105
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002C-038.5-20110419		
Lab Code:	R1102105-039	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**247**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 19:40	
Carbon, Total Organic (TOC), Average	9060	**4.3**		mg/L	1.0	1	NA	4/30/11 10:53	
Chloride	300.0	**687**		mg/L	40	200	NA	4/21/11 12:36	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 19:57	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 19:40	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/21/11 12:36	*
Sulfate	300.0	**47.8**		mg/L	2.0	10	NA	4/27/11 00:23	
Sulfide, Total	SM 4500-S2- F	0.99	U	mg/L	0.99	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1105
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002C-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-039	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
1,1,2,2-Tetrachloroethane	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
1,1,2-Trichloroethane	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	200	500	NA	4/25/11 14:30		243554	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	190	500	NA	4/25/11 14:30		243554	
1,2,4-Trichlorobenzene	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	220	500	NA	4/25/11 14:30		243554	
1,2-Dibromoethane	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
1,2-Dichlorobenzene	2500	U	2500	200	500	NA	4/25/11 14:30		243554	
1,2-Dichloroethane	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
1,2-Dichloropropane	2500	U	2500	330	500	NA	4/25/11 14:30		243554	
1,3-Dichlorobenzene	2500	U	2500	180	500	NA	4/25/11 14:30		243554	
1,4-Dichlorobenzene	2500	U	2500	170	500	NA	4/25/11 14:30		243554	
n-Butanol	25000	U	25000	3400	500	NA	4/25/11 14:30		243554	
2-Butanone (MEK)	5000	U	5000	500	500	NA	4/25/11 14:30		243554	
2-Hexanone	5000	U	5000	200	500	NA	4/25/11 14:30		243554	
4-Methyl-2-pentanone	5000	U	5000	170	500	NA	4/25/11 14:30		243554	
Acetone	10000	U	10000	800	500	NA	4/25/11 14:30		243554	
Benzene	2500	U	2500	160	500	NA	4/25/11 14:30		243554	
Bromodichloromethane	2500	U	2500	210	500	NA	4/25/11 14:30		243554	
Bromoform	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Bromomethane	2500	U	2500	200	500	NA	4/25/11 14:30		243554	
Carbon Disulfide	5000	U	5000	180	500	NA	4/25/11 14:30		243554	
Carbon Tetrachloride	2500	U	2500	180	500	NA	4/25/11 14:30		243554	
Chlorobenzene	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Chloroethane	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Chloroform	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Chloromethane	2500	U	2500	230	500	NA	4/25/11 14:30		243554	
Cyclohexane	5000	U	5000	150	500	NA	4/25/11 14:30		243554	
Dibromochloromethane	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	370	500	NA	4/25/11 14:30		243554	
Dichloromethane	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Ethylbenzene	2500	U	2500	210	500	NA	4/25/11 14:30		243554	
Isopropylbenzene (Cumene)	2500	U	2500	170	500	NA	4/25/11 14:30		243554	
Methyl Acetate	5000	U	5000	330	500	NA	4/25/11 14:30		243554	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1105
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002C-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-039	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Methylcyclohexane	5000	U	5000	150	500	NA	4/25/11 14:30		243554	
Styrene	2500	U	2500	180	500	NA	4/25/11 14:30		243554	
Tetrachloroethene (PCE)	2500	U	2500	210	500	NA	4/25/11 14:30		243554	
Toluene	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Trichloroethene (TCE)	**1800**	J	2500	150	500	NA	4/25/11 14:30		243554	
Trichlorofluoromethane (CFC 11)	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
Vinyl Chloride	**2100**	J	2500	150	500	NA	4/25/11 14:30		243554	
cis-1,2-Dichloroethene	**74000**		2500	150	500	NA	4/25/11 14:30		243554	
cis-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
m,p-Xylenes	2500	U	2500	410	500	NA	4/25/11 14:30		243554	
n-Butyl Acetate	2500	U	2500	150	500	NA	4/25/11 14:30		243554	
o-Xylene	2500	U	2500	200	500	NA	4/25/11 14:30		243554	
trans-1,2-Dichloroethene	**490**	J	2500	150	500	NA	4/25/11 14:30		243554	
trans-1,3-Dichloropropene	2500	U	2500	150	500	NA	4/25/11 14:30		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	4/25/11 14:30	
Dibromofluoromethane	110	89-119	4/25/11 14:30	
Toluene-d8	108	87-121	4/25/11 14:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1105
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002C-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-039	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 12:38		243805	
Ethene	**8.0**		1.0	1	NA	4/27/11 12:38		243805	
Methane	**58**		2.0	1	NA	4/27/11 12:38		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1105
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 00:47
Sample Name:	LC34-BW0002C-038.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-039	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1692.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**36**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1035
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002D-045.5-20110419		
Lab Code:	R1102105-040	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.3**		mg/L	1.0	10	NA	4/26/11 01:32	
Carbon, Total Organic (TOC), Average	9060	**4.0**		mg/L	1.0	1	NA	4/30/11 11:28	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 20:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1035
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002D-045.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-040	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
1,1,2,2-Tetrachloroethane	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
1,1,2-Trichloroethane	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	130	U	130	10	25	NA	4/25/11 15:00		243554	
1,1-Dichloroethane (1,1-DCA)	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
1,1-Dichloroethene (1,1-DCE)	130	U	130	9.3	25	NA	4/25/11 15:00		243554	
1,2,4-Trichlorobenzene	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	11	25	NA	4/25/11 15:00		243554	
1,2-Dibromoethane	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
1,2-Dichlorobenzene	130	U	130	10	25	NA	4/25/11 15:00		243554	
1,2-Dichloroethane	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
1,2-Dichloropropane	130	U	130	17	25	NA	4/25/11 15:00		243554	
1,3-Dichlorobenzene	130	U	130	9.0	25	NA	4/25/11 15:00		243554	
1,4-Dichlorobenzene	130	U	130	8.5	25	NA	4/25/11 15:00		243554	
n-Butanol	1300	U	1300	170	25	NA	4/25/11 15:00		243554	
2-Butanone (MEK)	250	U	250	25	25	NA	4/25/11 15:00		243554	
2-Hexanone	250	U	250	10	25	NA	4/25/11 15:00		243554	
4-Methyl-2-pentanone	250	U	250	8.5	25	NA	4/25/11 15:00		243554	
Acetone	500	U	500	40	25	NA	4/25/11 15:00		243554	
Benzene	130	U	130	7.8	25	NA	4/25/11 15:00		243554	
Bromodichloromethane	130	U	130	11	25	NA	4/25/11 15:00		243554	
Bromoform	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Bromomethane	130	U	130	10	25	NA	4/25/11 15:00		243554	
Carbon Disulfide	250	U	250	8.8	25	NA	4/25/11 15:00		243554	
Carbon Tetrachloride	130	U	130	9.0	25	NA	4/25/11 15:00		243554	
Chlorobenzene	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Chloroethane	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Chloroform	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Chloromethane	130	U	130	12	25	NA	4/25/11 15:00		243554	
Cyclohexane	250	U	250	7.5	25	NA	4/25/11 15:00		243554	
Dibromochloromethane	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Dichlorodifluoromethane (CFC 12)	130	U	130	19	25	NA	4/25/11 15:00		243554	
Dichloromethane	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Ethylbenzene	130	U	130	11	25	NA	4/25/11 15:00		243554	
Isopropylbenzene (Cumene)	130	U	130	8.5	25	NA	4/25/11 15:00		243554	
Methyl Acetate	250	U	250	17	25	NA	4/25/11 15:00		243554	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1035
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002D-045.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-040	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Methylcyclohexane	250	U	250	7.5	25	NA	4/25/11 15:00		243554	
Styrene	130	U	130	8.8	25	NA	4/25/11 15:00		243554	
Tetrachloroethene (PCE)	130	U	130	11	25	NA	4/25/11 15:00		243554	
Toluene	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Trichloroethene (TCE)	**38**	J	130	7.5	25	NA	4/25/11 15:00		243554	
Trichlorofluoromethane (CFC 11)	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
Vinyl Chloride	**410**		130	7.5	25	NA	4/25/11 15:00		243554	
cis-1,2-Dichloroethene	**7500**	D	500	30	100	NA	4/26/11 20:06		243708	
cis-1,3-Dichloropropene	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
m,p-Xylenes	130	U	130	21	25	NA	4/25/11 15:00		243554	
n-Butyl Acetate	130	U	130	7.5	25	NA	4/25/11 15:00		243554	
o-Xylene	130	U	130	10	25	NA	4/25/11 15:00		243554	
trans-1,2-Dichloroethene	**49**	J	130	7.5	25	NA	4/25/11 15:00		243554	
trans-1,3-Dichloropropene	130	U	130	7.5	25	NA	4/25/11 15:00		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	4/25/11 15:00	
Dibromofluoromethane	111	89-119	4/25/11 15:00	
Toluene-d8	108	87-121	4/25/11 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1035
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002D-045.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-040	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 13:39		243805	
Ethene	**2.9**		1.0	1	NA	4/27/11 13:39		243805	
Methane	**9.0**		2.0	1	NA	4/27/11 13:39		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1035
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 02:50
Sample Name:	LC34-BW0002D-045.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-040	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1694.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**3.3**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1350
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002E-052.5-20110419		
Lab Code:	R1102105-041	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/26/11 01:45	
Carbon, Total Organic (TOC), Average	9060	**3.2**		mg/L	1.0	1	NA	4/30/11 13:15	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 20:23	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1350
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002E-052.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-041	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.55**	J	5.0	0.40	1	NA	4/25/11 15:30		243554	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/25/11 15:30		243554	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/25/11 15:30		243554	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/25/11 15:30		243554	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/25/11 15:30		243554	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/25/11 15:30		243554	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/25/11 15:30		243554	
n-Butanol	50	U	50	6.7	1	NA	4/25/11 15:30		243554	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/25/11 15:30		243554	
2-Hexanone	10	U	10	0.40	1	NA	4/25/11 15:30		243554	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/25/11 15:30		243554	
Acetone	20	U	20	1.6	1	NA	4/25/11 15:30		243554	
Benzene	5.0	U	5.0	0.31	1	NA	4/25/11 15:30		243554	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/25/11 15:30		243554	
Bromoform	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/25/11 15:30		243554	
Carbon Disulfide	10	U	10	0.35	1	NA	4/25/11 15:30		243554	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/25/11 15:30		243554	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Chloroform	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/25/11 15:30		243554	
Cyclohexane	10	U	10	0.30	1	NA	4/25/11 15:30		243554	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/25/11 15:30		243554	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/25/11 15:30		243554	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/25/11 15:30		243554	
Methyl Acetate	10	U	10	0.66	1	NA	4/25/11 15:30		243554	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1350
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002E-052.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-041	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Methylcyclohexane	10	U	10	0.30	1	NA	4/25/11 15:30		243554	
Styrene	5.0	U	5.0	0.35	1	NA	4/25/11 15:30		243554	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/25/11 15:30		243554	
Toluene	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Trichloroethene (TCE)	**0.64**	J	5.0	0.30	1	NA	4/25/11 15:30		243554	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
Vinyl Chloride	**2.0**	J	5.0	0.30	1	NA	4/25/11 15:30		243554	
cis-1,2-Dichloroethene	**19**		5.0	0.30	1	NA	4/25/11 15:30		243554	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/25/11 15:30		243554	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/25/11 15:30		243554	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 15:30		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	4/25/11 15:30	
Dibromofluoromethane	111	89-119	4/25/11 15:30	
Toluene-d8	108	87-121	4/25/11 15:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1350
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002E-052.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-041	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 13:53		243805	
Ethene	1.0	U	1.0	1	NA	4/27/11 13:53		243805	
Methane	**6.8**		2.0	1	NA	4/27/11 13:53		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1350
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 04:53
Sample Name:	LC34-BW0002E-052.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-041	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1696.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1445
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002F-059.5-20110419		
Lab Code:	R1102105-042	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/26/11 01:58	
Carbon, Total Organic (TOC), Average	9060	**3.1**		mg/L	1.0	1	NA	4/30/11 13:50	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 20:36	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1445
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002F-059.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-042	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/26/11 15:17		243491	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/26/11 15:17		243491	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/26/11 15:17		243491	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/26/11 15:17		243491	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/26/11 15:17		243491	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/26/11 15:17		243491	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/26/11 15:17		243491	
n-Butanol	50	U	50	6.7	1	NA	4/26/11 15:17		243491	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/26/11 15:17		243491	
2-Hexanone	10	U	10	0.40	1	NA	4/26/11 15:17		243491	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/26/11 15:17		243491	
Acetone	20	U	20	1.6	1	NA	4/26/11 15:17		243491	
Benzene	5.0	U	5.0	0.31	1	NA	4/26/11 15:17		243491	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/26/11 15:17		243491	
Bromoform	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/26/11 15:17		243491	
Carbon Disulfide	10	U	10	0.35	1	NA	4/26/11 15:17		243491	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/26/11 15:17		243491	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Chloroform	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/26/11 15:17		243491	
Cyclohexane	10	U	10	0.30	1	NA	4/26/11 15:17		243491	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/26/11 15:17		243491	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/26/11 15:17		243491	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/26/11 15:17		243491	
Methyl Acetate	10	U	10	0.66	1	NA	4/26/11 15:17		243491	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1445
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002F-059.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-042	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Methylcyclohexane	10	U	10	0.30	1	NA	4/26/11 15:17		243491	
Styrene	5.0	U	5.0	0.35	1	NA	4/26/11 15:17		243491	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/26/11 15:17		243491	
Toluene	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Trichloroethene (TCE)	**4.7**	J	5.0	0.30	1	NA	4/26/11 15:17		243491	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
Vinyl Chloride	**67**		5.0	0.30	1	NA	4/26/11 15:17		243491	
cis-1,2-Dichloroethene	**80**		5.0	0.30	1	NA	4/26/11 15:17		243491	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/26/11 15:17		243491	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/26/11 15:17		243491	
trans-1,2-Dichloroethene	**2.1**	J	5.0	0.30	1	NA	4/26/11 15:17		243491	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 15:17		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	111	85-122	4/26/11 15:17	
Dibromofluoromethane	112	89-119	4/26/11 15:17	
Toluene-d8	105	87-121	4/26/11 15:17	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1445
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0002F-059.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-042	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 14:22		243805	
Ethene	1.0	U	1.0	1	NA	4/27/11 14:22		243805	
Methane	**6.4**		2.0	1	NA	4/27/11 14:22		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1445
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 06:56
Sample Name:	LC34-BW0002F-059.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-042	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1698.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1136
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003A-024.5-20110419		
Lab Code:	R1102105-043	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/26/11 02:11	
Carbon, Total Organic (TOC), Average	9060	**2.9**		mg/L	1.0	1	NA	4/30/11 15:01	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 20:49	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1136
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003A-024.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-043	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
1,1,2,2-Tetrachloroethane	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
1,1,2-Trichloroethane	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1700**		1000	80	200	NA	4/25/11 16:30		243554	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	74	200	NA	4/25/11 16:30		243554	
1,2,4-Trichlorobenzene	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	86	200	NA	4/25/11 16:30		243554	
1,2-Dibromoethane	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
1,2-Dichlorobenzene	1000	U	1000	80	200	NA	4/25/11 16:30		243554	
1,2-Dichloroethane	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
1,2-Dichloropropane	1000	U	1000	140	200	NA	4/25/11 16:30		243554	
1,3-Dichlorobenzene	1000	U	1000	72	200	NA	4/25/11 16:30		243554	
1,4-Dichlorobenzene	1000	U	1000	68	200	NA	4/25/11 16:30		243554	
n-Butanol	10000	U	10000	1400	200	NA	4/25/11 16:30		243554	
2-Butanone (MEK)	2000	U	2000	200	200	NA	4/25/11 16:30		243554	
2-Hexanone	2000	U	2000	80	200	NA	4/25/11 16:30		243554	
4-Methyl-2-pentanone	2000	U	2000	68	200	NA	4/25/11 16:30		243554	
Acetone	4000	U	4000	320	200	NA	4/25/11 16:30		243554	
Benzene	1000	U	1000	62	200	NA	4/25/11 16:30		243554	
Bromodichloromethane	1000	U	1000	82	200	NA	4/25/11 16:30		243554	
Bromoform	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Bromomethane	1000	U	1000	80	200	NA	4/25/11 16:30		243554	
Carbon Disulfide	2000	U	2000	70	200	NA	4/25/11 16:30		243554	
Carbon Tetrachloride	1000	U	1000	72	200	NA	4/25/11 16:30		243554	
Chlorobenzene	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Chloroethane	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Chloroform	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Chloromethane	1000	U	1000	92	200	NA	4/25/11 16:30		243554	
Cyclohexane	2000	U	2000	60	200	NA	4/25/11 16:30		243554	
Dibromochloromethane	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	150	200	NA	4/25/11 16:30		243554	
Dichloromethane	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Ethylbenzene	1000	U	1000	84	200	NA	4/25/11 16:30		243554	
Isopropylbenzene (Cumene)	1000	U	1000	68	200	NA	4/25/11 16:30		243554	
Methyl Acetate	2000	U	2000	140	200	NA	4/25/11 16:30		243554	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1136
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003A-024.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-043	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Methylcyclohexane	2000	U	2000	60	200	NA	4/25/11 16:30		243554	
Styrene	1000	U	1000	70	200	NA	4/25/11 16:30		243554	
Tetrachloroethene (PCE)	1000	U	1000	84	200	NA	4/25/11 16:30		243554	
Toluene	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Trichloroethene (TCE)	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Trichlorofluoromethane (CFC 11)	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
Vinyl Chloride	**5700**		1000	60	200	NA	4/25/11 16:30		243554	
cis-1,2-Dichloroethene	**45000**	D	2500	150	500	NA	4/26/11 20:36		243708	
cis-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
m,p-Xylenes	1000	U	1000	170	200	NA	4/25/11 16:30		243554	
n-Butyl Acetate	1000	U	1000	60	200	NA	4/25/11 16:30		243554	
o-Xylene	1000	U	1000	80	200	NA	4/25/11 16:30		243554	
trans-1,2-Dichloroethene	**970**	J	1000	60	200	NA	4/25/11 16:30		243554	
trans-1,3-Dichloropropene	1000	U	1000	60	200	NA	4/25/11 16:30		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85-122	4/25/11 16:30	
Dibromofluoromethane	112	89-119	4/25/11 16:30	
Toluene-d8	108	87-121	4/25/11 16:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1136
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003A-024.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-043	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 14:34		243805	
Ethene	**110**	D	2.0	2	NA	4/27/11 15:13		243805	
Methane	**94**		2.0	1	NA	4/27/11 14:34		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1136
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 10:00
Sample Name:	LC34-BW0003A-024.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-043	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1701.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1323
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003B-031.5-20110419		
Lab Code:	R1102105-044	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/26/11 02:25	
Carbon, Total Organic (TOC), Average	9060	**3.3**		mg/L	1.0	1	NA	4/30/11 16:11	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 21:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1323
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003B-031.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-044	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	30	100	NA	4/25/11 17:00		243554	
1,1,2,2-Tetrachloroethane	500	U	500	30	100	NA	4/25/11 17:00		243554	
1,1,2-Trichloroethane	500	U	500	30	100	NA	4/25/11 17:00		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	**96**	J	500	40	100	NA	4/25/11 17:00		243554	
1,1-Dichloroethane (1,1-DCA)	500	U	500	30	100	NA	4/25/11 17:00		243554	
1,1-Dichloroethene (1,1-DCE)	500	U	500	37	100	NA	4/25/11 17:00		243554	
1,2,4-Trichlorobenzene	500	U	500	30	100	NA	4/25/11 17:00		243554	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	100	NA	4/25/11 17:00		243554	
1,2-Dibromoethane	500	U	500	30	100	NA	4/25/11 17:00		243554	
1,2-Dichlorobenzene	500	U	500	40	100	NA	4/25/11 17:00		243554	
1,2-Dichloroethane	500	U	500	30	100	NA	4/25/11 17:00		243554	
1,2-Dichloropropane	500	U	500	66	100	NA	4/25/11 17:00		243554	
1,3-Dichlorobenzene	500	U	500	36	100	NA	4/25/11 17:00		243554	
1,4-Dichlorobenzene	500	U	500	34	100	NA	4/25/11 17:00		243554	
n-Butanol	5000	U	5000	670	100	NA	4/25/11 17:00		243554	
2-Butanone (MEK)	1000	U	1000	100	100	NA	4/25/11 17:00		243554	
2-Hexanone	1000	U	1000	40	100	NA	4/25/11 17:00		243554	
4-Methyl-2-pentanone	1000	U	1000	34	100	NA	4/25/11 17:00		243554	
Acetone	2000	U	2000	160	100	NA	4/25/11 17:00		243554	
Benzene	500	U	500	31	100	NA	4/25/11 17:00		243554	
Bromodichloromethane	500	U	500	41	100	NA	4/25/11 17:00		243554	
Bromoform	500	U	500	30	100	NA	4/25/11 17:00		243554	
Bromomethane	500	U	500	40	100	NA	4/25/11 17:00		243554	
Carbon Disulfide	1000	U	1000	35	100	NA	4/25/11 17:00		243554	
Carbon Tetrachloride	500	U	500	36	100	NA	4/25/11 17:00		243554	
Chlorobenzene	500	U	500	30	100	NA	4/25/11 17:00		243554	
Chloroethane	500	U	500	30	100	NA	4/25/11 17:00		243554	
Chloroform	500	U	500	30	100	NA	4/25/11 17:00		243554	
Chloromethane	500	U	500	46	100	NA	4/25/11 17:00		243554	
Cyclohexane	1000	U	1000	30	100	NA	4/25/11 17:00		243554	
Dibromochloromethane	500	U	500	30	100	NA	4/25/11 17:00		243554	
Dichlorodifluoromethane (CFC 12)	500	U	500	73	100	NA	4/25/11 17:00		243554	
Dichloromethane	500	U	500	30	100	NA	4/25/11 17:00		243554	
Ethylbenzene	500	U	500	42	100	NA	4/25/11 17:00		243554	
Isopropylbenzene (Cumene)	500	U	500	34	100	NA	4/25/11 17:00		243554	
Methyl Acetate	1000	U	1000	66	100	NA	4/25/11 17:00		243554	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1323
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003B-031.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-044	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	30	100	NA	4/25/11 17:00		243554	
Methylcyclohexane	1000	U	1000	30	100	NA	4/25/11 17:00		243554	
Styrene	500	U	500	35	100	NA	4/25/11 17:00		243554	
Tetrachloroethene (PCE)	500	U	500	42	100	NA	4/25/11 17:00		243554	
Toluene	500	U	500	30	100	NA	4/25/11 17:00		243554	
Trichloroethene (TCE)	500	U	500	30	100	NA	4/25/11 17:00		243554	
Trichlorofluoromethane (CFC 11)	500	U	500	30	100	NA	4/25/11 17:00		243554	
Vinyl Chloride	**5500**		500	30	100	NA	4/25/11 17:00		243554	
cis-1,2-Dichloroethene	**46000**	D	1300	75	250	NA	4/26/11 21:06		243708	
cis-1,3-Dichloropropene	500	U	500	30	100	NA	4/25/11 17:00		243554	
m,p-Xylenes	500	U	500	81	100	NA	4/25/11 17:00		243554	
n-Butyl Acetate	500	U	500	30	100	NA	4/25/11 17:00		243554	
o-Xylene	500	U	500	40	100	NA	4/25/11 17:00		243554	
trans-1,2-Dichloroethene	**600**		500	30	100	NA	4/25/11 17:00		243554	
trans-1,3-Dichloropropene	500	U	500	30	100	NA	4/25/11 17:00		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	4/25/11 17:00	
Dibromofluoromethane	113	89-119	4/25/11 17:00	
Toluene-d8	108	87-121	4/25/11 17:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1323
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003B-031.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-044	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 15:30		243805	
Ethene	**160**	D	2.5	2.5	NA	4/27/11 15:43		243805	
Methane	**97**		2.0	1	NA	4/27/11 15:30		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1323
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 12:03
Sample Name:	LC34-BW0003B-031.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-044	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1703.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Sample Name: LC34-BW0003B-031.5-20110419-D
Lab Code: R1102105-045

Service Request: R1102105
Date Collected: 4/19/11 1323
Date Received: 4/20/11

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analysis Lot: 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	30	100	NA	4/25/11 17:30		243554	
1,1,2,2-Tetrachloroethane	500	U	500	30	100	NA	4/25/11 17:30		243554	
1,1,2-Trichloroethane	500	U	500	30	100	NA	4/25/11 17:30		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	**220**	J	500	40	100	NA	4/25/11 17:30		243554	
1,1-Dichloroethane (1,1-DCA)	500	U	500	30	100	NA	4/25/11 17:30		243554	
1,1-Dichloroethene (1,1-DCE)	**44**	J	500	37	100	NA	4/25/11 17:30		243554	
1,2,4-Trichlorobenzene	500	U	500	30	100	NA	4/25/11 17:30		243554	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	43	100	NA	4/25/11 17:30		243554	
1,2-Dibromoethane	500	U	500	30	100	NA	4/25/11 17:30		243554	
1,2-Dichlorobenzene	500	U	500	40	100	NA	4/25/11 17:30		243554	
1,2-Dichloroethane	500	U	500	30	100	NA	4/25/11 17:30		243554	
1,2-Dichloropropane	500	U	500	66	100	NA	4/25/11 17:30		243554	
1,3-Dichlorobenzene	500	U	500	36	100	NA	4/25/11 17:30		243554	
1,4-Dichlorobenzene	500	U	500	34	100	NA	4/25/11 17:30		243554	
n-Butanol	5000	U	5000	670	100	NA	4/25/11 17:30		243554	
2-Butanone (MEK)	1000	U	1000	100	100	NA	4/25/11 17:30		243554	
2-Hexanone	1000	U	1000	40	100	NA	4/25/11 17:30		243554	
4-Methyl-2-pentanone	1000	U	1000	34	100	NA	4/25/11 17:30		243554	
Acetone	2000	U	2000	160	100	NA	4/25/11 17:30		243554	
Benzene	500	U	500	31	100	NA	4/25/11 17:30		243554	
Bromodichloromethane	500	U	500	41	100	NA	4/25/11 17:30		243554	
Bromoform	500	U	500	30	100	NA	4/25/11 17:30		243554	
Bromomethane	500	U	500	40	100	NA	4/25/11 17:30		243554	
Carbon Disulfide	1000	U	1000	35	100	NA	4/25/11 17:30		243554	
Carbon Tetrachloride	500	U	500	36	100	NA	4/25/11 17:30		243554	
Chlorobenzene	500	U	500	30	100	NA	4/25/11 17:30		243554	
Chloroethane	500	U	500	30	100	NA	4/25/11 17:30		243554	
Chloroform	500	U	500	30	100	NA	4/25/11 17:30		243554	
Chloromethane	500	U	500	46	100	NA	4/25/11 17:30		243554	
Cyclohexane	1000	U	1000	30	100	NA	4/25/11 17:30		243554	
Dibromochloromethane	500	U	500	30	100	NA	4/25/11 17:30		243554	
Dichlorodifluoromethane (CFC 12)	500	U	500	73	100	NA	4/25/11 17:30		243554	
Dichloromethane	500	U	500	30	100	NA	4/25/11 17:30		243554	
Ethylbenzene	500	U	500	42	100	NA	4/25/11 17:30		243554	
Isopropylbenzene (Cumene)	500	U	500	34	100	NA	4/25/11 17:30		243554	
Methyl Acetate	1000	U	1000	66	100	NA	4/25/11 17:30		243554	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1323
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003B-031.5-20110419-D	**Units:**	µg/L
Lab Code:	R1102105-045	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	30	100	NA	4/25/11 17:30		243554	
Methylcyclohexane	1000	U	1000	30	100	NA	4/25/11 17:30		243554	
Styrene	500	U	500	35	100	NA	4/25/11 17:30		243554	
Tetrachloroethene (PCE)	500	U	500	42	100	NA	4/25/11 17:30		243554	
Toluene	500	U	500	30	100	NA	4/25/11 17:30		243554	
Trichloroethene (TCE)	500	U	500	30	100	NA	4/25/11 17:30		243554	
Trichlorofluoromethane (CFC 11)	500	U	500	30	100	NA	4/25/11 17:30		243554	
Vinyl Chloride	**9500**		500	30	100	NA	4/25/11 17:30		243554	
cis-1,2-Dichloroethene	**52000**	D	2500	150	500	NA	4/26/11 21:37		243708	
cis-1,3-Dichloropropene	500	U	500	30	100	NA	4/25/11 17:30		243554	
m,p-Xylenes	500	U	500	81	100	NA	4/25/11 17:30		243554	
n-Butyl Acetate	500	U	500	30	100	NA	4/25/11 17:30		243554	
o-Xylene	500	U	500	40	100	NA	4/25/11 17:30		243554	
trans-1,2-Dichloroethene	**1000**		500	30	100	NA	4/25/11 17:30		243554	
trans-1,3-Dichloropropene	500	U	500	30	100	NA	4/25/11 17:30		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	4/25/11 17:30	
Dibromofluoromethane	112	89-119	4/25/11 17:30	
Toluene-d8	109	87-121	4/25/11 17:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1443
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003C-038.5-20110419		
Lab Code:	R1102105-046	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**279**		mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 19:53	
Carbon, Total Organic (TOC), Average	9060	**3.8**		mg/L	1.0	1	NA	4/30/11 16:47	
Chloride	300.0	**490**		mg/L	40	200	NA	4/21/11 12:49	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 22:47	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 19:53	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/21/11 12:49	
Sulfate	300.0	**34.0**		mg/L	2.0	10	NA	4/27/11 01:03	
Sulfide, Total	SM 4500-S2- F	0.98	U	mg/L	0.98	1	NA	4/22/11 09:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1443
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003C-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-046	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	15	50	NA	4/25/11 18:00		243554	
1,1,2,2-Tetrachloroethane	250	U	250	15	50	NA	4/25/11 18:00		243554	
1,1,2-Trichloroethane	250	U	250	15	50	NA	4/25/11 18:00		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	20	50	NA	4/25/11 18:00		243554	
1,1-Dichloroethane (1,1-DCA)	250	U	250	15	50	NA	4/25/11 18:00		243554	
1,1-Dichloroethene (1,1-DCE)	250	U	250	19	50	NA	4/25/11 18:00		243554	
1,2,4-Trichlorobenzene	250	U	250	15	50	NA	4/25/11 18:00		243554	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	22	50	NA	4/25/11 18:00		243554	
1,2-Dibromoethane	250	U	250	15	50	NA	4/25/11 18:00		243554	
1,2-Dichlorobenzene	250	U	250	20	50	NA	4/25/11 18:00		243554	
1,2-Dichloroethane	250	U	250	15	50	NA	4/25/11 18:00		243554	
1,2-Dichloropropane	250	U	250	33	50	NA	4/25/11 18:00		243554	
1,3-Dichlorobenzene	250	U	250	18	50	NA	4/25/11 18:00		243554	
1,4-Dichlorobenzene	250	U	250	17	50	NA	4/25/11 18:00		243554	
n-Butanol	2500	U	2500	340	50	NA	4/25/11 18:00		243554	
2-Butanone (MEK)	500	U	500	50	50	NA	4/25/11 18:00		243554	
2-Hexanone	500	U	500	20	50	NA	4/25/11 18:00		243554	
4-Methyl-2-pentanone	500	U	500	17	50	NA	4/25/11 18:00		243554	
Acetone	1000	U	1000	80	50	NA	4/25/11 18:00		243554	
Benzene	250	U	250	16	50	NA	4/25/11 18:00		243554	
Bromodichloromethane	250	U	250	21	50	NA	4/25/11 18:00		243554	
Bromoform	250	U	250	15	50	NA	4/25/11 18:00		243554	
Bromomethane	250	U	250	20	50	NA	4/25/11 18:00		243554	
Carbon Disulfide	500	U	500	18	50	NA	4/25/11 18:00		243554	
Carbon Tetrachloride	250	U	250	18	50	NA	4/25/11 18:00		243554	
Chlorobenzene	250	U	250	15	50	NA	4/25/11 18:00		243554	
Chloroethane	250	U	250	15	50	NA	4/25/11 18:00		243554	
Chloroform	250	U	250	15	50	NA	4/25/11 18:00		243554	
Chloromethane	250	U	250	23	50	NA	4/25/11 18:00		243554	
Cyclohexane	500	U	500	15	50	NA	4/25/11 18:00		243554	
Dibromochloromethane	250	U	250	15	50	NA	4/25/11 18:00		243554	
Dichlorodifluoromethane (CFC 12)	250	U	250	37	50	NA	4/25/11 18:00		243554	
Dichloromethane	250	U	250	15	50	NA	4/25/11 18:00		243554	
Ethylbenzene	250	U	250	21	50	NA	4/25/11 18:00		243554	
Isopropylbenzene (Cumene)	250	U	250	17	50	NA	4/25/11 18:00		243554	
Methyl Acetate	500	U	500	33	50	NA	4/25/11 18:00		243554	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1443
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003C-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-046	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	15	50	NA	4/25/11 18:00		243554	
Methylcyclohexane	500	U	500	15	50	NA	4/25/11 18:00		243554	
Styrene	250	U	250	18	50	NA	4/25/11 18:00		243554	
Tetrachloroethene (PCE)	250	U	250	21	50	NA	4/25/11 18:00		243554	
Toluene	250	U	250	15	50	NA	4/25/11 18:00		243554	
Trichloroethene (TCE)	250	U	250	15	50	NA	4/25/11 18:00		243554	
Trichlorofluoromethane (CFC 11)	250	U	250	15	50	NA	4/25/11 18:00		243554	
Vinyl Chloride	**4500**		250	15	50	NA	4/25/11 18:00		243554	
cis-1,2-Dichloroethene	**6000**		250	15	50	NA	4/25/11 18:00		243554	
cis-1,3-Dichloropropene	250	U	250	15	50	NA	4/25/11 18:00		243554	
m,p-Xylenes	250	U	250	41	50	NA	4/25/11 18:00		243554	
n-Butyl Acetate	250	U	250	15	50	NA	4/25/11 18:00		243554	
o-Xylene	250	U	250	20	50	NA	4/25/11 18:00		243554	
trans-1,2-Dichloroethene	**120**	J	250	15	50	NA	4/25/11 18:00		243554	
trans-1,3-Dichloropropene	250	U	250	15	50	NA	4/25/11 18:00		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	4/25/11 18:00	
Dibromofluoromethane	113	89-119	4/25/11 18:00	
Toluene-d8	110	87-121	4/25/11 18:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1443
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003C-038.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-046	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 15:53		243805	
Ethene	**260**	D	5.0	5	NA	4/27/11 16:04		243805	
Methane	**96**		2.0	1	NA	4/27/11 15:53		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1443
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 14:06
Sample Name:	LC34-BW0003C-038.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-046	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1705.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**8.1**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1245
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003D-045.5-20110419		
Lab Code:	R1102105-047	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.3**		mg/L	1.0	10	NA	4/26/11 02:38	
Carbon, Total Organic (TOC), Average	9060	**4.1**		mg/L	1.0	1	NA	4/30/11 17:22	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 22:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1245
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003D-045.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-047	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	15	50	NA	4/26/11 15:44		243491	
1,1,2,2-Tetrachloroethane	250	U	250	15	50	NA	4/26/11 15:44		243491	
1,1,2-Trichloroethane	250	U	250	15	50	NA	4/26/11 15:44		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	20	50	NA	4/26/11 15:44		243491	
1,1-Dichloroethane (1,1-DCA)	250	U	250	15	50	NA	4/26/11 15:44		243491	
1,1-Dichloroethene (1,1-DCE)	250	U	250	19	50	NA	4/26/11 15:44		243491	
1,2,4-Trichlorobenzene	250	U	250	15	50	NA	4/26/11 15:44		243491	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	22	50	NA	4/26/11 15:44		243491	
1,2-Dibromoethane	250	U	250	15	50	NA	4/26/11 15:44		243491	
1,2-Dichlorobenzene	250	U	250	20	50	NA	4/26/11 15:44		243491	
1,2-Dichloroethane	250	U	250	15	50	NA	4/26/11 15:44		243491	
1,2-Dichloropropane	250	U	250	33	50	NA	4/26/11 15:44		243491	
1,3-Dichlorobenzene	250	U	250	18	50	NA	4/26/11 15:44		243491	
1,4-Dichlorobenzene	250	U	250	17	50	NA	4/26/11 15:44		243491	
n-Butanol	2500	U	2500	340	50	NA	4/26/11 15:44		243491	
2-Butanone (MEK)	500	U	500	50	50	NA	4/26/11 15:44		243491	
2-Hexanone	500	U	500	20	50	NA	4/26/11 15:44		243491	
4-Methyl-2-pentanone	500	U	500	17	50	NA	4/26/11 15:44		243491	
Acetone	1000	U	1000	80	50	NA	4/26/11 15:44		243491	
Benzene	250	U	250	16	50	NA	4/26/11 15:44		243491	
Bromodichloromethane	250	U	250	21	50	NA	4/26/11 15:44		243491	
Bromoform	250	U	250	15	50	NA	4/26/11 15:44		243491	
Bromomethane	250	U	250	20	50	NA	4/26/11 15:44		243491	
Carbon Disulfide	500	U	500	18	50	NA	4/26/11 15:44		243491	
Carbon Tetrachloride	250	U	250	18	50	NA	4/26/11 15:44		243491	
Chlorobenzene	250	U	250	15	50	NA	4/26/11 15:44		243491	
Chloroethane	250	U	250	15	50	NA	4/26/11 15:44		243491	
Chloroform	250	U	250	15	50	NA	4/26/11 15:44		243491	
Chloromethane	250	U	250	23	50	NA	4/26/11 15:44		243491	
Cyclohexane	500	U	500	15	50	NA	4/26/11 15:44		243491	
Dibromochloromethane	250	U	250	15	50	NA	4/26/11 15:44		243491	
Dichlorodifluoromethane (CFC 12)	250	U	250	37	50	NA	4/26/11 15:44		243491	
Dichloromethane	250	U	250	15	50	NA	4/26/11 15:44		243491	
Ethylbenzene	250	U	250	21	50	NA	4/26/11 15:44		243491	
Isopropylbenzene (Cumene)	250	U	250	17	50	NA	4/26/11 15:44		243491	
Methyl Acetate	500	U	500	33	50	NA	4/26/11 15:44		243491	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1245
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003D-045.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-047	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	15	50	NA	4/26/11 15:44		243491	
Methylcyclohexane	500	U	500	15	50	NA	4/26/11 15:44		243491	
Styrene	250	U	250	18	50	NA	4/26/11 15:44		243491	
Tetrachloroethene (PCE)	250	U	250	21	50	NA	4/26/11 15:44		243491	
Toluene	250	U	250	15	50	NA	4/26/11 15:44		243491	
Trichloroethene (TCE)	**650**		250	15	50	NA	4/26/11 15:44		243491	
Trichlorofluoromethane (CFC 11)	250	U	250	15	50	NA	4/26/11 15:44		243491	
Vinyl Chloride	**400**		250	15	50	NA	4/26/11 15:44		243491	
cis-1,2-Dichloroethene	**6800**		250	15	50	NA	4/26/11 15:44		243491	
cis-1,3-Dichloropropene	250	U	250	15	50	NA	4/26/11 15:44		243491	
m,p-Xylenes	250	U	250	41	50	NA	4/26/11 15:44		243491	
n-Butyl Acetate	250	U	250	15	50	NA	4/26/11 15:44		243491	
o-Xylene	250	U	250	20	50	NA	4/26/11 15:44		243491	
trans-1,2-Dichloroethene	**33**	J	250	15	50	NA	4/26/11 15:44		243491	
trans-1,3-Dichloropropene	250	U	250	15	50	NA	4/26/11 15:44		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	4/26/11 15:44	
Dibromofluoromethane	108	89-119	4/26/11 15:44	
Toluene-d8	106	87-121	4/26/11 15:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1245
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003D-045.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-047	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 16:18		243805	
Ethene	4.5		1.0	1	NA	4/27/11 16:18		243805	
Methane	44		2.0	1	NA	4/27/11 16:18		243805	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1245
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 16:08
Sample Name:	LC34-BW0003D-045.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-047	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1707.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**4.8**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1245
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003D-045.5-20110419-D	**Units:**	µg/L
Lab Code:	R1102105-048	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	15	50	NA	4/26/11 16:11		243491	
1,1,2,2-Tetrachloroethane	250	U	250	15	50	NA	4/26/11 16:11		243491	
1,1,2-Trichloroethane	250	U	250	15	50	NA	4/26/11 16:11		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	20	50	NA	4/26/11 16:11		243491	
1,1-Dichloroethane (1,1-DCA)	250	U	250	15	50	NA	4/26/11 16:11		243491	
1,1-Dichloroethene (1,1-DCE)	250	U	250	19	50	NA	4/26/11 16:11		243491	
1,2,4-Trichlorobenzene	250	U	250	15	50	NA	4/26/11 16:11		243491	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	22	50	NA	4/26/11 16:11		243491	
1,2-Dibromoethane	250	U	250	15	50	NA	4/26/11 16:11		243491	
1,2-Dichlorobenzene	250	U	250	20	50	NA	4/26/11 16:11		243491	
1,2-Dichloroethane	250	U	250	15	50	NA	4/26/11 16:11		243491	
1,2-Dichloropropane	250	U	250	33	50	NA	4/26/11 16:11		243491	
1,3-Dichlorobenzene	250	U	250	18	50	NA	4/26/11 16:11		243491	
1,4-Dichlorobenzene	250	U	250	17	50	NA	4/26/11 16:11		243491	
n-Butanol	2500	U	2500	340	50	NA	4/26/11 16:11		243491	
2-Butanone (MEK)	500	U	500	50	50	NA	4/26/11 16:11		243491	
2-Hexanone	500	U	500	20	50	NA	4/26/11 16:11		243491	
4-Methyl-2-pentanone	500	U	500	17	50	NA	4/26/11 16:11		243491	
Acetone	1000	U	1000	80	50	NA	4/26/11 16:11		243491	
Benzene	250	U	250	16	50	NA	4/26/11 16:11		243491	
Bromodichloromethane	250	U	250	21	50	NA	4/26/11 16:11		243491	
Bromoform	250	U	250	15	50	NA	4/26/11 16:11		243491	
Bromomethane	250	U	250	20	50	NA	4/26/11 16:11		243491	
Carbon Disulfide	500	U	500	18	50	NA	4/26/11 16:11		243491	
Carbon Tetrachloride	250	U	250	18	50	NA	4/26/11 16:11		243491	
Chlorobenzene	250	U	250	15	50	NA	4/26/11 16:11		243491	
Chloroethane	250	U	250	15	50	NA	4/26/11 16:11		243491	
Chloroform	250	U	250	15	50	NA	4/26/11 16:11		243491	
Chloromethane	250	U	250	23	50	NA	4/26/11 16:11		243491	
Cyclohexane	500	U	500	15	50	NA	4/26/11 16:11		243491	
Dibromochloromethane	250	U	250	15	50	NA	4/26/11 16:11		243491	
Dichlorodifluoromethane (CFC 12)	250	U	250	37	50	NA	4/26/11 16:11		243491	
Dichloromethane	250	U	250	15	50	NA	4/26/11 16:11		243491	
Ethylbenzene	250	U	250	21	50	NA	4/26/11 16:11		243491	
Isopropylbenzene (Cumene)	250	U	250	17	50	NA	4/26/11 16:11		243491	
Methyl Acetate	500	U	500	33	50	NA	4/26/11 16:11		243491	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1245
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003D-045.5-20110419-D	**Units:**	µg/L
Lab Code:	R1102105-048	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	15	50	NA	4/26/11 16:11		243491	
Methylcyclohexane	500	U	500	15	50	NA	4/26/11 16:11		243491	
Styrene	250	U	250	18	50	NA	4/26/11 16:11		243491	
Tetrachloroethene (PCE)	250	U	250	21	50	NA	4/26/11 16:11		243491	
Toluene	250	U	250	15	50	NA	4/26/11 16:11		243491	
Trichloroethene (TCE)	**500**		250	15	50	NA	4/26/11 16:11		243491	
Trichlorofluoromethane (CFC 11)	250	U	250	15	50	NA	4/26/11 16:11		243491	
Vinyl Chloride	**340**		250	15	50	NA	4/26/11 16:11		243491	
cis-1,2-Dichloroethene	**5700**		250	15	50	NA	4/26/11 16:11		243491	
cis-1,3-Dichloropropene	250	U	250	15	50	NA	4/26/11 16:11		243491	
m,p-Xylenes	250	U	250	41	50	NA	4/26/11 16:11		243491	
n-Butyl Acetate	250	U	250	15	50	NA	4/26/11 16:11		243491	
o-Xylene	250	U	250	20	50	NA	4/26/11 16:11		243491	
trans-1,2-Dichloroethene	**27**	J	250	15	50	NA	4/26/11 16:11		243491	
trans-1,3-Dichloropropene	250	U	250	15	50	NA	4/26/11 16:11		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	4/26/11 16:11	
Dibromofluoromethane	108	89-119	4/26/11 16:11	
Toluene-d8	106	87-121	4/26/11 16:11	

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Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1406
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003E-052.5-20110419		
Lab Code:	R1102105-049	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.3**		mg/L	1.0	10	NA	4/26/11 03:31	
Carbon, Total Organic (TOC), Average	9060	**3.4**		mg/L	1.0	1	NA	5/2/11 13:30	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 22:21	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1406
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003E-052.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-049	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/26/11 16:38		243491	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/26/11 16:38		243491	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/26/11 16:38		243491	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/26/11 16:38		243491	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/26/11 16:38		243491	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/26/11 16:38		243491	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/26/11 16:38		243491	
n-Butanol	50	U	50	6.7	1	NA	4/26/11 16:38		243491	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/26/11 16:38		243491	
2-Hexanone	10	U	10	0.40	1	NA	4/26/11 16:38		243491	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/26/11 16:38		243491	
Acetone	20	U	20	1.6	1	NA	4/26/11 16:38		243491	
Benzene	5.0	U	5.0	0.31	1	NA	4/26/11 16:38		243491	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/26/11 16:38		243491	
Bromoform	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/26/11 16:38		243491	
Carbon Disulfide	10	U	10	0.35	1	NA	4/26/11 16:38		243491	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/26/11 16:38		243491	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Chloroform	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/26/11 16:38		243491	
Cyclohexane	10	U	10	0.30	1	NA	4/26/11 16:38		243491	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/26/11 16:38		243491	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/26/11 16:38		243491	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/26/11 16:38		243491	
Methyl Acetate	10	U	10	0.66	1	NA	4/26/11 16:38		243491	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1406
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003E-052.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-049	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Methylcyclohexane	10	U	10	0.30	1	NA	4/26/11 16:38		243491	
Styrene	5.0	U	5.0	0.35	1	NA	4/26/11 16:38		243491	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/26/11 16:38		243491	
Toluene	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
cis-1,2-Dichloroethene	0.72	J	5.0	0.30	1	NA	4/26/11 16:38		243491	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/26/11 16:38		243491	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/26/11 16:38		243491	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 16:38		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	113	85-122	4/26/11 16:38	
Dibromofluoromethane	112	89-119	4/26/11 16:38	
Toluene-d8	109	87-121	4/26/11 16:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1406
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003E-052.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-049	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243960

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/28/11 11:58		243960	
Ethene	1.0	U	1.0	1	NA	4/28/11 11:58		243960	
Methane	**6.5**		2.0	1	NA	4/28/11 11:58		243960	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1406
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 18:11
Sample Name:	LC34-BW0003E-052.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-049	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1709.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1519
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003F-059.5-20110419		
Lab Code:	R1102105-050	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.4**		mg/L	1.0	10	NA	4/26/11 03:44	
Carbon, Total Organic (TOC), Average	9060	**3.2**		mg/L	1.0	1	NA	5/2/11 14:05	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	5/3/11 22:34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1519
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003F-059.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-050	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/26/11 17:06		243491	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/26/11 17:06		243491	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/26/11 17:06		243491	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/26/11 17:06		243491	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/26/11 17:06		243491	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/26/11 17:06		243491	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/26/11 17:06		243491	
n-Butanol	50	U	50	6.7	1	NA	4/26/11 17:06		243491	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/26/11 17:06		243491	
2-Hexanone	10	U	10	0.40	1	NA	4/26/11 17:06		243491	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/26/11 17:06		243491	
Acetone	20	U	20	1.6	1	NA	4/26/11 17:06		243491	
Benzene	5.0	U	5.0	0.31	1	NA	4/26/11 17:06		243491	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/26/11 17:06		243491	
Bromoform	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/26/11 17:06		243491	
Carbon Disulfide	10	U	10	0.35	1	NA	4/26/11 17:06		243491	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/26/11 17:06		243491	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Chloroform	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/26/11 17:06		243491	
Cyclohexane	10	U	10	0.30	1	NA	4/26/11 17:06		243491	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/26/11 17:06		243491	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/26/11 17:06		243491	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/26/11 17:06		243491	
Methyl Acetate	10	U	10	0.66	1	NA	4/26/11 17:06		243491	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1519
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003F-059.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-050	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Methylcyclohexane	10	U	10	0.30	1	NA	4/26/11 17:06		243491	
Styrene	5.0	U	5.0	0.35	1	NA	4/26/11 17:06		243491	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/26/11 17:06		243491	
Toluene	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
Vinyl Chloride	**0.39**	J	5.0	0.30	1	NA	4/26/11 17:06		243491	
cis-1,2-Dichloroethene	**0.94**	J	5.0	0.30	1	NA	4/26/11 17:06		243491	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/26/11 17:06		243491	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/26/11 17:06		243491	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 17:06		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	4/26/11 17:06	
Dibromofluoromethane	108	89-119	4/26/11 17:06	
Toluene-d8	104	87-121	4/26/11 17:06	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1519
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-BW0003F-059.5-20110419	**Units:**	µg/L
Lab Code:	R1102105-050	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243960

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/28/11 12:06		243960	
Ethene	1.0	U	1.0	1	NA	4/28/11 12:06		243960	
Methane	**7.0**		2.0	1	NA	4/28/11 12:06		243960	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11 1519
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 21:15
Sample Name:	LC34-BW0003F-059.5-20110419	**Units:**	mg/L
Lab Code:	R1102105-050	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1712.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-01	**Units:**	µg/L
Lab Code:	R1102105-051	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
1,1,2,2-Tetrachloroethane	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
1,1,2-Trichloroethane	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	**9800**		1300	100	250	NA	4/26/11 17:33		243491	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	93	250	NA	4/26/11 17:33		243491	
1,2,4-Trichlorobenzene	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	110	250	NA	4/26/11 17:33		243491	
1,2-Dibromoethane	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
1,2-Dichlorobenzene	1300	U	1300	100	250	NA	4/26/11 17:33		243491	
1,2-Dichloroethane	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
1,2-Dichloropropane	1300	U	1300	170	250	NA	4/26/11 17:33		243491	
1,3-Dichlorobenzene	1300	U	1300	90	250	NA	4/26/11 17:33		243491	
1,4-Dichlorobenzene	1300	U	1300	85	250	NA	4/26/11 17:33		243491	
n-Butanol	13000	U	13000	1700	250	NA	4/26/11 17:33		243491	
2-Butanone (MEK)	2500	U	2500	250	250	NA	4/26/11 17:33		243491	
2-Hexanone	2500	U	2500	100	250	NA	4/26/11 17:33		243491	
4-Methyl-2-pentanone	2500	U	2500	85	250	NA	4/26/11 17:33		243491	
Acetone	5000	U	5000	400	250	NA	4/26/11 17:33		243491	
Benzene	1300	U	1300	78	250	NA	4/26/11 17:33		243491	
Bromodichloromethane	1300	U	1300	110	250	NA	4/26/11 17:33		243491	
Bromoform	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Bromomethane	1300	U	1300	100	250	NA	4/26/11 17:33		243491	
Carbon Disulfide	2500	U	2500	88	250	NA	4/26/11 17:33		243491	
Carbon Tetrachloride	1300	U	1300	90	250	NA	4/26/11 17:33		243491	
Chlorobenzene	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Chloroethane	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Chloroform	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Chloromethane	1300	U	1300	120	250	NA	4/26/11 17:33		243491	
Cyclohexane	2500	U	2500	75	250	NA	4/26/11 17:33		243491	
Dibromochloromethane	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	190	250	NA	4/26/11 17:33		243491	
Dichloromethane	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Ethylbenzene	1300	U	1300	110	250	NA	4/26/11 17:33		243491	
Isopropylbenzene (Cumene)	1300	U	1300	85	250	NA	4/26/11 17:33		243491	
Methyl Acetate	2500	U	2500	170	250	NA	4/26/11 17:33		243491	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-01	**Units:**	µg/L
Lab Code:	R1102105-051	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Methylcyclohexane	2500	U	2500	75	250	NA	4/26/11 17:33		243491	
Styrene	1300	U	1300	88	250	NA	4/26/11 17:33		243491	
Tetrachloroethene (PCE)	1300	U	1300	110	250	NA	4/26/11 17:33		243491	
Toluene	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Trichloroethene (TCE)	**140**	J	1300	75	250	NA	4/26/11 17:33		243491	
Trichlorofluoromethane (CFC 11)	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
Vinyl Chloride	**1800**		1300	75	250	NA	4/26/11 17:33		243491	
cis-1,2-Dichloroethene	**38000**		1300	75	250	NA	4/26/11 17:33		243491	
cis-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
m,p-Xylenes	1300	U	1300	210	250	NA	4/26/11 17:33		243491	
n-Butyl Acetate	1300	U	1300	75	250	NA	4/26/11 17:33		243491	
o-Xylene	1300	U	1300	100	250	NA	4/26/11 17:33		243491	
trans-1,2-Dichloroethene	**790**	J	1300	75	250	NA	4/26/11 17:33		243491	
trans-1,3-Dichloropropene	1300	U	1300	75	250	NA	4/26/11 17:33		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	4/26/11 17:33	
Dibromofluoromethane	108	89-119	4/26/11 17:33	
Toluene-d8	104	87-121	4/26/11 17:33	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/10/11 23:18
Sample Name:	LC34-FD-20110419-02	**Units:**	mg/L
Lab Code:	R1102105-052	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1714.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**2.4**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-03	**Units:**	µg/L
Lab Code:	R1102105-053	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243960

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/28/11 12:47		243960	
Ethene	**32**		1.0	1	NA	4/28/11 12:47		243960	
Methane	**80**		2.0	1	NA	4/28/11 12:47		243960	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-04		
Lab Code:	R1102105-054	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**4.0**		mg/L	1.0	1	NA	5/2/11 14:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-05		
Lab Code:	R1102105-055	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Sulfide, Total	SM 4500-S2- F	0.99	U	mg/L	0.99	1	NA	4/22/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-06		
Lab Code:	R1102105-056	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**648**		mg/L	40	200	NA	4/21/11 12:23	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	4/20/11 19:00	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	4/21/11 12:23	*
Sulfate	300.0	**92.3**		mg/L	2.0	10	NA	4/21/11 13:16	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-07		
Lab Code:	R1102105-057	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	171		mg/L	2.0	1	NA	4/29/11 08:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-08		
Lab Code:	R1102105-058	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 22:07	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/27/11	4/30/11 22:07	
Manganese, Dissolved	6010C	**14**		µg/L	10	1	4/27/11	4/30/11 22:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
		Date Analyzed:	5/11/11 01:21
Sample Name:	LC34-FD-20110419-09	**Units:**	mg/L
Lab Code:	R1102105-059	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050911\CC1716.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**3.3**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-10	**Units:**	µg/L
Lab Code:	R1102105-060	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
1,1,2,2-Tetrachloroethane	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
1,1,2-Trichloroethane	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	130	U	130	10	25	NA	4/26/11 18:00		243491	
1,1-Dichloroethane (1,1-DCA)	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
1,1-Dichloroethene (1,1-DCE)	130	U	130	9.3	25	NA	4/26/11 18:00		243491	
1,2,4-Trichlorobenzene	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	11	25	NA	4/26/11 18:00		243491	
1,2-Dibromoethane	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
1,2-Dichlorobenzene	130	U	130	10	25	NA	4/26/11 18:00		243491	
1,2-Dichloroethane	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
1,2-Dichloropropane	130	U	130	17	25	NA	4/26/11 18:00		243491	
1,3-Dichlorobenzene	130	U	130	9.0	25	NA	4/26/11 18:00		243491	
1,4-Dichlorobenzene	130	U	130	8.5	25	NA	4/26/11 18:00		243491	
n-Butanol	1300	U	1300	170	25	NA	4/26/11 18:00		243491	
2-Butanone (MEK)	250	U	250	25	25	NA	4/26/11 18:00		243491	
2-Hexanone	250	U	250	10	25	NA	4/26/11 18:00		243491	
4-Methyl-2-pentanone	250	U	250	8.5	25	NA	4/26/11 18:00		243491	
Acetone	500	U	500	40	25	NA	4/26/11 18:00		243491	
Benzene	130	U	130	7.8	25	NA	4/26/11 18:00		243491	
Bromodichloromethane	130	U	130	11	25	NA	4/26/11 18:00		243491	
Bromoform	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Bromomethane	130	U	130	10	25	NA	4/26/11 18:00		243491	
Carbon Disulfide	250	U	250	8.8	25	NA	4/26/11 18:00		243491	
Carbon Tetrachloride	130	U	130	9.0	25	NA	4/26/11 18:00		243491	
Chlorobenzene	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Chloroethane	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Chloroform	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Chloromethane	130	U	130	12	25	NA	4/26/11 18:00		243491	
Cyclohexane	250	U	250	7.5	25	NA	4/26/11 18:00		243491	
Dibromochloromethane	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Dichlorodifluoromethane (CFC 12)	130	U	130	19	25	NA	4/26/11 18:00		243491	
Dichloromethane	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Ethylbenzene	130	U	130	11	25	NA	4/26/11 18:00		243491	
Isopropylbenzene (Cumene)	130	U	130	8.5	25	NA	4/26/11 18:00		243491	
Methyl Acetate	250	U	250	17	25	NA	4/26/11 18:00		243491	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-10	**Units:**	µg/L
Lab Code:	R1102105-060	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Methylcyclohexane	250	U	250	7.5	25	NA	4/26/11 18:00		243491	
Styrene	130	U	130	8.8	25	NA	4/26/11 18:00		243491	
Tetrachloroethene (PCE)	130	U	130	11	25	NA	4/26/11 18:00		243491	
Toluene	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Trichloroethene (TCE)	**44**	J	130	7.5	25	NA	4/26/11 18:00		243491	
Trichlorofluoromethane (CFC 11)	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
Vinyl Chloride	**360**		130	7.5	25	NA	4/26/11 18:00		243491	
cis-1,2-Dichloroethene	**7900**	D	250	15	50	NA	4/27/11 11:56		243847	*
cis-1,3-Dichloropropene	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
m,p-Xylenes	130	U	130	21	25	NA	4/26/11 18:00		243491	
n-Butyl Acetate	130	U	130	7.5	25	NA	4/26/11 18:00		243491	
o-Xylene	130	U	130	10	25	NA	4/26/11 18:00		243491	
trans-1,2-Dichloroethene	**49**	J	130	7.5	25	NA	4/26/11 18:00		243491	
trans-1,3-Dichloropropene	130	U	130	7.5	25	NA	4/26/11 18:00		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	4/26/11 18:00	
Dibromofluoromethane	108	89-119	4/26/11 18:00	
Toluene-d8	104	87-121	4/26/11 18:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-11	**Units:**	µg/L
Lab Code:	R1102105-061	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243960

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/28/11 12:58		243960	
Ethene	**4.3**		1.0	1	NA	4/28/11 12:58		243960	
Methane	**43**		2.0	1	NA	4/28/11 12:58		243960	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-12		
Lab Code:	R1102105-062	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060	**3.2**		mg/L	1.0	1	NA	5/2/11 15:51	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-13	**Units:**	µg/L
Lab Code:	R1102105-063	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/26/11 18:27		243491	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/26/11 18:27		243491	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/26/11 18:27		243491	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/26/11 18:27		243491	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/26/11 18:27		243491	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/26/11 18:27		243491	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/26/11 18:27		243491	
n-Butanol	50	U	50	6.7	1	NA	4/26/11 18:27		243491	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/26/11 18:27		243491	
2-Hexanone	10	U	10	0.40	1	NA	4/26/11 18:27		243491	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/26/11 18:27		243491	
Acetone	20	U	20	1.6	1	NA	4/26/11 18:27		243491	
Benzene	5.0	U	5.0	0.31	1	NA	4/26/11 18:27		243491	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/26/11 18:27		243491	
Bromoform	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/26/11 18:27		243491	
Carbon Disulfide	10	U	10	0.35	1	NA	4/26/11 18:27		243491	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/26/11 18:27		243491	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Chloroform	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/26/11 18:27		243491	
Cyclohexane	10	U	10	0.30	1	NA	4/26/11 18:27		243491	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/26/11 18:27		243491	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/26/11 18:27		243491	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/26/11 18:27		243491	
Methyl Acetate	10	U	10	0.66	1	NA	4/26/11 18:27		243491	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-FD-20110419-13	**Units:**	µg/L
Lab Code:	R1102105-063	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Methylcyclohexane	10	U	10	0.30	1	NA	4/26/11 18:27		243491	
Styrene	5.0	U	5.0	0.35	1	NA	4/26/11 18:27		243491	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/26/11 18:27		243491	
Toluene	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Trichloroethene (TCE)	**5.3**		5.0	0.30	1	NA	4/26/11 18:27		243491	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
Vinyl Chloride	**38**		5.0	0.30	1	NA	4/26/11 18:27		243491	
cis-1,2-Dichloroethene	**58**		5.0	0.30	1	NA	4/26/11 18:27		243491	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/26/11 18:27		243491	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/26/11 18:27		243491	
trans-1,2-Dichloroethene	**1.4**	J	5.0	0.30	1	NA	4/26/11 18:27		243491	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 18:27		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	4/26/11 18:27	
Dibromofluoromethane	110	89-119	4/26/11 18:27	
Toluene-d8	105	87-121	4/26/11 18:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-TB-20110419-01	**Units:**	µg/L
Lab Code:	R1102105-064	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243450

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/23/11 15:06		243450	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/23/11 15:06		243450	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/23/11 15:06		243450	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/23/11 15:06		243450	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/23/11 15:06		243450	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/23/11 15:06		243450	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/23/11 15:06		243450	
n-Butanol	50	U	50	6.7	1	NA	4/23/11 15:06		243450	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/23/11 15:06		243450	
2-Hexanone	10	U	10	0.40	1	NA	4/23/11 15:06		243450	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/23/11 15:06		243450	
Acetone	20	U	20	1.6	1	NA	4/23/11 15:06		243450	
Benzene	5.0	U	5.0	0.31	1	NA	4/23/11 15:06		243450	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/23/11 15:06		243450	
Bromoform	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/23/11 15:06		243450	
Carbon Disulfide	10	U	10	0.35	1	NA	4/23/11 15:06		243450	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/23/11 15:06		243450	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Chloroform	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/23/11 15:06		243450	
Cyclohexane	10	U	10	0.30	1	NA	4/23/11 15:06		243450	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/23/11 15:06		243450	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/23/11 15:06		243450	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/23/11 15:06		243450	
Methyl Acetate	10	U	10	0.66	1	NA	4/23/11 15:06		243450	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-TB-20110419-01	**Units:**	µg/L
Lab Code:	R1102105-064	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243450

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Methylcyclohexane	10	U	10	0.30	1	NA	4/23/11 15:06		243450	
Styrene	5.0	U	5.0	0.35	1	NA	4/23/11 15:06		243450	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/23/11 15:06		243450	
Toluene	**0.45**	J	5.0	0.30	1	NA	4/23/11 15:06		243450	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/23/11 15:06		243450	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/23/11 15:06		243450	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/23/11 15:06		243450	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	4/23/11 15:06	
Dibromofluoromethane	109	89-119	4/23/11 15:06	
Toluene-d8	108	87-121	4/23/11 15:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-TB-20110419-02	**Units:**	µg/L
Lab Code:	R1102105-065	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/25/11 13:31		243554	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/25/11 13:31		243554	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/25/11 13:31		243554	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/25/11 13:31		243554	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/25/11 13:31		243554	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/25/11 13:31		243554	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/25/11 13:31		243554	
n-Butanol	50	U	50	6.7	1	NA	4/25/11 13:31		243554	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/25/11 13:31		243554	
2-Hexanone	10	U	10	0.40	1	NA	4/25/11 13:31		243554	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/25/11 13:31		243554	
Acetone	20	U	20	1.6	1	NA	4/25/11 13:31		243554	
Benzene	5.0	U	5.0	0.31	1	NA	4/25/11 13:31		243554	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/25/11 13:31		243554	
Bromoform	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/25/11 13:31		243554	
Carbon Disulfide	10	U	10	0.35	1	NA	4/25/11 13:31		243554	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/25/11 13:31		243554	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Chloroform	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/25/11 13:31		243554	
Cyclohexane	10	U	10	0.30	1	NA	4/25/11 13:31		243554	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/25/11 13:31		243554	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/25/11 13:31		243554	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/25/11 13:31		243554	
Methyl Acetate	10	U	10	0.66	1	NA	4/25/11 13:31		243554	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	4/19/11
Sample Matrix:	Water	**Date Received:**	4/20/11
Sample Name:	LC34-TB-20110419-02	**Units:**	µg/L
Lab Code:	R1102105-065	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Methylcyclohexane	10	U	10	0.30	1	NA	4/25/11 13:31		243554	
Styrene	5.0	U	5.0	0.35	1	NA	4/25/11 13:31		243554	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/25/11 13:31		243554	
Toluene	**0.38**	J	5.0	0.30	1	NA	4/25/11 13:31		243554	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/25/11 13:31		243554	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/25/11 13:31		243554	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 13:31		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	4/25/11 13:31	
Dibromofluoromethane	107	89-119	4/25/11 13:31	
Toluene-d8	109	87-121	4/25/11 13:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	4/26/11 10:24	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	4/19/11 19:45	
Carbon, Total Organic (TOC), Average	9060	1.0	U	mg/L	1.0	1	NA	4/29/11 15:26	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	4/19/11 19:45	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	5/3/11 13:36	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	4/19/11 19:45	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	4/19/11 19:45	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	4/19/11 19:45	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	4/22/11 09:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	4/29/11 08:45	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	4/20/11 15:54	
Carbon, Total Organic (TOC), Average	9060	1.0	U	mg/L	1.0	1	NA	4/30/11 05:35	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	4/20/11 09:53	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	5/3/11 19:18	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	4/20/11 15:54	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	4/20/11 09:53	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	4/20/11 15:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	4/25/11 21:46	
Carbon, Total Organic (TOC), Average	9060	1.0	U	mg/L	1.0	1	NA	5/2/11 12:19	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	4/21/11 11:16	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	4/21/11 11:16	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	4/21/11 11:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB4	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	4/26/11 03:05	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	4/22/11 03:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB5	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	4/26/11 22:11	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	4/26/11 22:11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB6	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	4/29/11 21:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/21/11	4/26/11 22:12	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/21/11	4/26/11 22:12	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	4/21/11	4/26/11 22:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 19:39	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/27/11	4/30/11 19:39	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 19:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1102105-MB3	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:07	
Iron, Dissolved	6010C	100	U	µg/L	100	1	4/27/11	4/30/11 20:07	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	4/27/11	4/30/11 20:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103598-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/21/11 12:02		243226	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/21/11 12:02		243226	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/21/11 12:02		243226	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/21/11 12:02		243226	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/21/11 12:02		243226	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/21/11 12:02		243226	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/21/11 12:02		243226	
n-Butanol	50	U	50	6.7	1	NA	4/21/11 12:02		243226	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/21/11 12:02		243226	
2-Hexanone	10	U	10	0.40	1	NA	4/21/11 12:02		243226	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/21/11 12:02		243226	
Acetone	20	U	20	1.6	1	NA	4/21/11 12:02		243226	
Benzene	5.0	U	5.0	0.31	1	NA	4/21/11 12:02		243226	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/21/11 12:02		243226	
Bromoform	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/21/11 12:02		243226	
Carbon Disulfide	10	U	10	0.35	1	NA	4/21/11 12:02		243226	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/21/11 12:02		243226	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Chloroform	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/21/11 12:02		243226	
Cyclohexane	10	U	10	0.30	1	NA	4/21/11 12:02		243226	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/21/11 12:02		243226	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/21/11 12:02		243226	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/21/11 12:02		243226	
Methyl Acetate	10	U	10	0.66	1	NA	4/21/11 12:02		243226	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103598-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243226

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Methylcyclohexane	10	U	10	0.30	1	NA	4/21/11 12:02		243226	
Styrene	5.0	U	5.0	0.35	1	NA	4/21/11 12:02		243226	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/21/11 12:02		243226	
Toluene	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/21/11 12:02		243226	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/21/11 12:02		243226	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/21/11 12:02		243226	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	4/21/11 12:02	
Dibromofluoromethane	108	89-119	4/21/11 12:02	
Toluene-d8	110	87-121	4/21/11 12:02	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103556-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/22/11 11:45		243340	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/22/11 11:45		243340	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/22/11 11:45		243340	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/22/11 11:45		243340	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/22/11 11:45		243340	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/22/11 11:45		243340	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/22/11 11:45		243340	
n-Butanol	50	U	50	6.7	1	NA	4/22/11 11:45		243340	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/22/11 11:45		243340	
2-Hexanone	10	U	10	0.40	1	NA	4/22/11 11:45		243340	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/22/11 11:45		243340	
Acetone	20	U	20	1.6	1	NA	4/22/11 11:45		243340	
Benzene	5.0	U	5.0	0.31	1	NA	4/22/11 11:45		243340	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/22/11 11:45		243340	
Bromoform	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/22/11 11:45		243340	
Carbon Disulfide	10	U	10	0.35	1	NA	4/22/11 11:45		243340	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/22/11 11:45		243340	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Chloroform	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/22/11 11:45		243340	
Cyclohexane	10	U	10	0.30	1	NA	4/22/11 11:45		243340	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/22/11 11:45		243340	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/22/11 11:45		243340	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/22/11 11:45		243340	
Methyl Acetate	10	U	10	0.66	1	NA	4/22/11 11:45		243340	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103556-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243340

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Methylcyclohexane	10	U	10	0.30	1	NA	4/22/11 11:45		243340	
Styrene	5.0	U	5.0	0.35	1	NA	4/22/11 11:45		243340	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/22/11 11:45		243340	
Toluene	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/22/11 11:45		243340	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/22/11 11:45		243340	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/22/11 11:45		243340	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	4/22/11 11:45	
Dibromofluoromethane	109	89-119	4/22/11 11:45	
Toluene-d8	104	87-121	4/22/11 11:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103557-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243343

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/23/11 13:23		243343	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/23/11 13:23		243343	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/23/11 13:23		243343	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/23/11 13:23		243343	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/23/11 13:23		243343	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/23/11 13:23		243343	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/23/11 13:23		243343	
n-Butanol	50	U	50	6.7	1	NA	4/23/11 13:23		243343	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/23/11 13:23		243343	
2-Hexanone	10	U	10	0.40	1	NA	4/23/11 13:23		243343	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/23/11 13:23		243343	
Acetone	20	U	20	1.6	1	NA	4/23/11 13:23		243343	
Benzene	5.0	U	5.0	0.31	1	NA	4/23/11 13:23		243343	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/23/11 13:23		243343	
Bromoform	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/23/11 13:23		243343	
Carbon Disulfide	10	U	10	0.35	1	NA	4/23/11 13:23		243343	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/23/11 13:23		243343	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Chloroform	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/23/11 13:23		243343	
Cyclohexane	10	U	10	0.30	1	NA	4/23/11 13:23		243343	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/23/11 13:23		243343	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/23/11 13:23		243343	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/23/11 13:23		243343	
Methyl Acetate	10	U	10	0.66	1	NA	4/23/11 13:23		243343	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103557-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243343

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Methylcyclohexane	10	U	10	0.30	1	NA	4/23/11 13:23		243343	
Styrene	5.0	U	5.0	0.35	1	NA	4/23/11 13:23		243343	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/23/11 13:23		243343	
Toluene	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/23/11 13:23		243343	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/23/11 13:23		243343	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/23/11 13:23		243343	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	4/23/11 13:23	
Dibromofluoromethane	107	89-119	4/23/11 13:23	
Toluene-d8	105	87-121	4/23/11 13:23	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103581-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243450

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/23/11 14:36		243450	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/23/11 14:36		243450	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/23/11 14:36		243450	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/23/11 14:36		243450	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/23/11 14:36		243450	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/23/11 14:36		243450	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/23/11 14:36		243450	
n-Butanol	50	U	50	6.7	1	NA	4/23/11 14:36		243450	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/23/11 14:36		243450	
2-Hexanone	10	U	10	0.40	1	NA	4/23/11 14:36		243450	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/23/11 14:36		243450	
Acetone	20	U	20	1.6	1	NA	4/23/11 14:36		243450	
Benzene	5.0	U	5.0	0.31	1	NA	4/23/11 14:36		243450	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/23/11 14:36		243450	
Bromoform	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/23/11 14:36		243450	
Carbon Disulfide	10	U	10	0.35	1	NA	4/23/11 14:36		243450	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/23/11 14:36		243450	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Chloroform	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/23/11 14:36		243450	
Cyclohexane	10	U	10	0.30	1	NA	4/23/11 14:36		243450	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/23/11 14:36		243450	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/23/11 14:36		243450	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/23/11 14:36		243450	
Methyl Acetate	10	U	10	0.66	1	NA	4/23/11 14:36		243450	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103581-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243450

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Methylcyclohexane	10	U	10	0.30	1	NA	4/23/11 14:36		243450	
Styrene	5.0	U	5.0	0.35	1	NA	4/23/11 14:36		243450	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/23/11 14:36		243450	
Toluene	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/23/11 14:36		243450	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/23/11 14:36		243450	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/23/11 14:36		243450	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	4/23/11 14:36	
Dibromofluoromethane	109	89-119	4/23/11 14:36	
Toluene-d8	108	87-121	4/23/11 14:36	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103576-09	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243441

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/25/11 10:32		243441	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/25/11 10:32		243441	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/25/11 10:32		243441	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/25/11 10:32		243441	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/25/11 10:32		243441	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/25/11 10:32		243441	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/25/11 10:32		243441	
n-Butanol	50	U	50	6.7	1	NA	4/25/11 10:32		243441	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/25/11 10:32		243441	
2-Hexanone	10	U	10	0.40	1	NA	4/25/11 10:32		243441	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/25/11 10:32		243441	
Acetone	20	U	20	1.6	1	NA	4/25/11 10:32		243441	
Benzene	5.0	U	5.0	0.31	1	NA	4/25/11 10:32		243441	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/25/11 10:32		243441	
Bromoform	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/25/11 10:32		243441	
Carbon Disulfide	10	U	10	0.35	1	NA	4/25/11 10:32		243441	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/25/11 10:32		243441	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Chloroform	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/25/11 10:32		243441	
Cyclohexane	10	U	10	0.30	1	NA	4/25/11 10:32		243441	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/25/11 10:32		243441	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/25/11 10:32		243441	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/25/11 10:32		243441	
Methyl Acetate	10	U	10	0.66	1	NA	4/25/11 10:32		243441	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103576-09	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243441

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Methylcyclohexane	10	U	10	0.30	1	NA	4/25/11 10:32		243441	
Styrene	5.0	U	5.0	0.35	1	NA	4/25/11 10:32		243441	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/25/11 10:32		243441	
Toluene	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/25/11 10:32		243441	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/25/11 10:32		243441	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 10:32		243441	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	4/25/11 10:32	
Dibromofluoromethane	107	89-119	4/25/11 10:32	
Toluene-d8	105	87-121	4/25/11 10:32	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103801-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/25/11 11:00		243554	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/25/11 11:00		243554	
1,2,4-Trichlorobenzene	**0.44**	J	5.0	0.30	1	NA	4/25/11 11:00		243554	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/25/11 11:00		243554	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/25/11 11:00		243554	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/25/11 11:00		243554	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/25/11 11:00		243554	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/25/11 11:00		243554	
n-Butanol	50	U	50	6.7	1	NA	4/25/11 11:00		243554	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/25/11 11:00		243554	
2-Hexanone	10	U	10	0.40	1	NA	4/25/11 11:00		243554	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/25/11 11:00		243554	
Acetone	20	U	20	1.6	1	NA	4/25/11 11:00		243554	
Benzene	5.0	U	5.0	0.31	1	NA	4/25/11 11:00		243554	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/25/11 11:00		243554	
Bromoform	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/25/11 11:00		243554	
Carbon Disulfide	10	U	10	0.35	1	NA	4/25/11 11:00		243554	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/25/11 11:00		243554	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Chloroform	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/25/11 11:00		243554	
Cyclohexane	10	U	10	0.30	1	NA	4/25/11 11:00		243554	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/25/11 11:00		243554	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/25/11 11:00		243554	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/25/11 11:00		243554	
Methyl Acetate	10	U	10	0.66	1	NA	4/25/11 11:00		243554	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103801-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243554

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Methylcyclohexane	10	U	10	0.30	1	NA	4/25/11 11:00		243554	
Styrene	5.0	U	5.0	0.35	1	NA	4/25/11 11:00		243554	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/25/11 11:00		243554	
Toluene	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/25/11 11:00		243554	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/25/11 11:00		243554	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/25/11 11:00		243554	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85-122	4/25/11 11:00	
Dibromofluoromethane	110	89-119	4/25/11 11:00	
Toluene-d8	109	87-121	4/25/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103593-09	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/26/11 11:12		243491	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/26/11 11:12		243491	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/26/11 11:12		243491	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/26/11 11:12		243491	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/26/11 11:12		243491	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/26/11 11:12		243491	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/26/11 11:12		243491	
n-Butanol	50	U	50	6.7	1	NA	4/26/11 11:12		243491	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/26/11 11:12		243491	
2-Hexanone	10	U	10	0.40	1	NA	4/26/11 11:12		243491	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/26/11 11:12		243491	
Acetone	20	U	20	1.6	1	NA	4/26/11 11:12		243491	
Benzene	5.0	U	5.0	0.31	1	NA	4/26/11 11:12		243491	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/26/11 11:12		243491	
Bromoform	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/26/11 11:12		243491	
Carbon Disulfide	10	U	10	0.35	1	NA	4/26/11 11:12		243491	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/26/11 11:12		243491	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Chloroform	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/26/11 11:12		243491	
Cyclohexane	10	U	10	0.30	1	NA	4/26/11 11:12		243491	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/26/11 11:12		243491	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/26/11 11:12		243491	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/26/11 11:12		243491	
Methyl Acetate	10	U	10	0.66	1	NA	4/26/11 11:12		243491	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103593-09	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243491

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Methylcyclohexane	10	U	10	0.30	1	NA	4/26/11 11:12		243491	
Styrene	5.0	U	5.0	0.35	1	NA	4/26/11 11:12		243491	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/26/11 11:12		243491	
Toluene	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/26/11 11:12		243491	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/26/11 11:12		243491	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 11:12		243491	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	4/26/11 11:12	
Dibromofluoromethane	110	89-119	4/26/11 11:12	
Toluene-d8	106	87-121	4/26/11 11:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103699-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243708

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/26/11 19:36		243708	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/26/11 19:36		243708	
1,2,4-Trichlorobenzene	**0.35**	J	5.0	0.30	1	NA	4/26/11 19:36		243708	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/26/11 19:36		243708	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/26/11 19:36		243708	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/26/11 19:36		243708	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/26/11 19:36		243708	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/26/11 19:36		243708	
n-Butanol	50	U	50	6.7	1	NA	4/26/11 19:36		243708	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/26/11 19:36		243708	
2-Hexanone	10	U	10	0.40	1	NA	4/26/11 19:36		243708	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/26/11 19:36		243708	
Acetone	20	U	20	1.6	1	NA	4/26/11 19:36		243708	
Benzene	5.0	U	5.0	0.31	1	NA	4/26/11 19:36		243708	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/26/11 19:36		243708	
Bromoform	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/26/11 19:36		243708	
Carbon Disulfide	10	U	10	0.35	1	NA	4/26/11 19:36		243708	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/26/11 19:36		243708	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Chloroform	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/26/11 19:36		243708	
Cyclohexane	10	U	10	0.30	1	NA	4/26/11 19:36		243708	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/26/11 19:36		243708	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/26/11 19:36		243708	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/26/11 19:36		243708	
Methyl Acetate	10	U	10	0.66	1	NA	4/26/11 19:36		243708	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103699-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243708

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Methylcyclohexane	10	U	10	0.30	1	NA	4/26/11 19:36		243708	
Styrene	5.0	U	5.0	0.35	1	NA	4/26/11 19:36		243708	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/26/11 19:36		243708	
Toluene	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/26/11 19:36		243708	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/26/11 19:36		243708	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/26/11 19:36		243708	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	4/26/11 19:36	
Dibromofluoromethane	106	89-119	4/26/11 19:36	
Toluene-d8	107	87-121	4/26/11 19:36	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103723-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243847

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
1,1,2-Trichloroethane	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.40	1	NA	4/27/11 10:46		243847	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	1	NA	4/27/11 10:46		243847	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.43	1	NA	4/27/11 10:46		243847	
1,2-Dibromoethane	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
1,2-Dichlorobenzene	5.0	U	5.0	0.40	1	NA	4/27/11 10:46		243847	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
1,2-Dichloropropane	5.0	U	5.0	0.66	1	NA	4/27/11 10:46		243847	
1,3-Dichlorobenzene	5.0	U	5.0	0.36	1	NA	4/27/11 10:46		243847	
1,4-Dichlorobenzene	5.0	U	5.0	0.34	1	NA	4/27/11 10:46		243847	
n-Butanol	50	U	50	6.7	1	NA	4/27/11 10:46		243847	
2-Butanone (MEK)	10	U	10	1.0	1	NA	4/27/11 10:46		243847	
2-Hexanone	10	U	10	0.40	1	NA	4/27/11 10:46		243847	
4-Methyl-2-pentanone	10	U	10	0.34	1	NA	4/27/11 10:46		243847	
Acetone	20	U	20	1.6	1	NA	4/27/11 10:46		243847	
Benzene	5.0	U	5.0	0.31	1	NA	4/27/11 10:46		243847	
Bromodichloromethane	5.0	U	5.0	0.41	1	NA	4/27/11 10:46		243847	
Bromoform	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Bromomethane	5.0	U	5.0	0.40	1	NA	4/27/11 10:46		243847	
Carbon Disulfide	10	U	10	0.35	1	NA	4/27/11 10:46		243847	
Carbon Tetrachloride	5.0	U	5.0	0.36	1	NA	4/27/11 10:46		243847	
Chlorobenzene	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Chloroethane	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Chloroform	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Chloromethane	5.0	U	5.0	0.46	1	NA	4/27/11 10:46		243847	
Cyclohexane	10	U	10	0.30	1	NA	4/27/11 10:46		243847	
Dibromochloromethane	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.73	1	NA	4/27/11 10:46		243847	
Dichloromethane	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Ethylbenzene	5.0	U	5.0	0.42	1	NA	4/27/11 10:46		243847	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.34	1	NA	4/27/11 10:46		243847	
Methyl Acetate	10	U	10	0.66	1	NA	4/27/11 10:46		243847	

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103723-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C **Analysis Lot:** 243847

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Methylcyclohexane	10	U	10	0.30	1	NA	4/27/11 10:46		243847	
Styrene	5.0	U	5.0	0.35	1	NA	4/27/11 10:46		243847	
Tetrachloroethene (PCE)	5.0	U	5.0	0.42	1	NA	4/27/11 10:46		243847	
Toluene	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Trichloroethene (TCE)	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
Vinyl Chloride	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
cis-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
cis-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
m,p-Xylenes	5.0	U	5.0	0.81	1	NA	4/27/11 10:46		243847	
n-Butyl Acetate	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
o-Xylene	5.0	U	5.0	0.40	1	NA	4/27/11 10:46		243847	
trans-1,2-Dichloroethene	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	
trans-1,3-Dichloropropene	5.0	U	5.0	0.30	1	NA	4/27/11 10:46		243847	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	4/27/11 10:46	
Dibromofluoromethane	110	89-119	4/27/11 10:46	
Toluene-d8	104	87-121	4/27/11 10:46	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103472-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243146

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/22/11 10:14		243146	
Ethene	1.0	U	1.0	1	NA	4/22/11 10:14		243146	
Methane	2.0	U	2.0	1	NA	4/22/11 10:14		243146	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103670-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243684

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/26/11 12:24		243684	
Ethene	1.0	U	1.0	1	NA	4/26/11 12:24		243684	
Methane	2.0	U	2.0	1	NA	4/26/11 12:24		243684	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103704-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243805

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/27/11 10:24		243805	
Ethene	1.0	U	1.0	1	NA	4/27/11 10:24		243805	
Methane	2.0	U	2.0	1	NA	4/27/11 10:24		243805	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1103813-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175 **Analysis Lot:** 243960

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	4/28/11 11:05		243960	
Ethene	1.0	U	1.0	1	NA	4/28/11 11:05		243960	
Methane	2.0	U	2.0	1	NA	4/28/11 11:05		243960	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/5/11 19:28
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1103475-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	243151
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050511\C1635.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1102105
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/7/11 23:55
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1104219-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	245199
Data File Name:	J:\ACQUDATA\HPLC03\DATA\050711\C1667.D\	**Instrument Name:**	R-HPLC-03
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/22/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1102105-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1102105-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	6.30	6.3	100	6.14	6.3	98	56 - 138	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/19/11 - 5/ 3/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1102105-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.03	1.00	103	90 - 110
Chloride	300.0	2.07	2.00	103	90 - 110
Iodide	300.0	0.935	1.00	94	90 - 110
Nitrate as Nitrogen	300.0	1.06	1.00	106	90 - 110
Sulfate	300.0	2.03	2.00	101	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.1	20.0	96	72 - 115
Carbon, Total Organic (TOC), Average	9060	9.33	10.0	93	86 - 117
Nitrite as Nitrogen	300.0	0.996	1.00	100	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/20/11 - 5/ 3/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1102105-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.04	1.00	104	90 - 110
Chloride	300.0	2.05	2.00	102	90 - 110
Iodide	300.0	0.945	1.00	95	90 - 110
Nitrate as Nitrogen	300.0	1.03	1.00	103	90 - 110
Sulfate	300.0	2.06	2.00	103	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.0	20.0	95	72 - 115
Carbon, Total Organic (TOC), Average	9060	9.86	10.0	99	86 - 117
Nitrite as Nitrogen	300.0	0.974	1.00	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/21/11 - 5/ 2/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1102105-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.05	1.00	105	90 - 110
Chloride	300.0	2.05	2.00	103	90 - 110
Sulfate	300.0	2.07	2.00	103	90 - 110
Carbon, Total Organic (TOC), Average	9060	9.60	10.0	96	86 - 117
Nitrite as Nitrogen	300.0	0.983	1.00	98	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/22/11 - 4/26/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1102105-LCS5			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Bromide	300.0	1.01	1.00	101	90 - 110
Sulfate	300.0	2.05	2.00	102	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/26/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1102105-LCS6 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.03	1.00	103	90 - 110
Sulfate	300.0	1.92	2.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/29/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1102105-LCS7 Result	Spike Amount	% Rec	% Rec Limits
Sulfate	300.0	1.96	2.00	98	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/26/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

		Lab Control Sample R1102105-LCS1			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Arsenic, Dissolved	6010C	37.1	40	93	80 - 120
Iron, Dissolved	6010C	990	1000	99	80 - 120
Manganese, Dissolved	6010C	506	500	101	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/30/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

		Lab Control Sample R1102105-LCS2			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Arsenic, Dissolved	6010C	38.0	40	95	80 - 120
Iron, Dissolved	6010C	1040	1000	104	80 - 120
Manganese, Dissolved	6010C	493	500	99	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/21/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243226

Analyte Name	Lab Control Sample RQ1103598-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.8	20.0	84	72 - 128
1,1,2,2-Tetrachloroethane	19.5	20.0	98	72 - 131
1,1,2-Trichloroethane	20.3	20.0	101	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.8	20.0	79	71 - 134
1,1-Dichloroethane (1,1-DCA)	18.3	20.0	92	76 - 122
1,1-Dichloroethene (1,1-DCE)	16.4	20.0	82	72 - 129
1,2,4-Trichlorobenzene	19.8	20.0	99	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.5	20.0	97	62 - 131
1,2-Dibromoethane	20.3	20.0	101	78 - 125
1,2-Dichlorobenzene	18.7	20.0	93	79 - 124
1,2-Dichloroethane	21.4	20.0	107	78 - 126
1,2-Dichloropropane	18.9	20.0	95	80 - 123
1,3-Dichlorobenzene	17.9	20.0	89	78 - 124
1,4-Dichlorobenzene	18.4	20.0	92	78 - 123
n-Butanol	755	1000	75	70 - 130
2-Butanone (MEK)	20.0	20.0	100	60 - 133
2-Hexanone	17.7	20.0	88	61 - 131
4-Methyl-2-pentanone	19.3	20.0	96	61 - 132
Acetone	17.7	20.0	88	59 - 140
Benzene	18.1	20.0	91	78 - 121
Bromodichloromethane	19.2	20.0	96	80 - 125
Bromoform	18.2	20.0	91	73 - 132
Bromomethane	16.8	20.0	84	57 - 144
Carbon Disulfide	20.5	20.0	102	59 - 138
Carbon Tetrachloride	15.4	20.0	77	69 - 135
Chlorobenzene	18.8	20.0	94	80 - 121
Chloroethane	19.2	20.0	96	71 - 130
Chloroform	18.4	20.0	92	78 - 125
Chloromethane	18.5	20.0	93	62 - 133
Cyclohexane	15.6	20.0	78	67 - 127
Dibromochloromethane	19.2	20.0	96	78 - 133
Dichlorodifluoromethane (CFC 12)	17.0	20.0	85	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/21/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243226

Lab Control Sample
RQ1103598-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.1	20.0	91	75 - 125
Ethylbenzene	17.4	20.0	87	78 - 123
Isopropylbenzene (Cumene)	19.0	20.0	95	73 - 133
Methyl Acetate	20.8	20.0	104	57 - 157
Methyl tert-Butyl Ether	19.4	20.0	97	75 - 126
Methylcyclohexane	15.9	20.0	80	64 - 133
Styrene	18.4	20.0	92	80 - 132
Tetrachloroethene (PCE)	17.3	20.0	86	72 - 131
Toluene	18.4	20.0	92	78 - 122
Trichloroethene (TCE)	17.8	20.0	89	74 - 127
Trichlorofluoromethane (CFC 11)	18.3	20.0	91	71 - 139
Vinyl Chloride	18.3	20.0	91	71 - 136
cis-1,2-Dichloroethene	18.5	20.0	92	78 - 122
cis-1,3-Dichloropropene	17.9	20.0	90	77 - 125
m,p-Xylenes	36.1	40.0	90	79 - 126
n-Butyl Acetate	17.6	20.0	88	54 - 127
o-Xylene	18.1	20.0	90	79 - 126
trans-1,2-Dichloroethene	16.7	20.0	84	75 - 121
trans-1,3-Dichloropropene	18.0	20.0	90	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/22/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243340

Analyte Name	Lab Control Sample RQ1103556-04 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	22.5	20.0	112	72 - 128
1,1,2,2-Tetrachloroethane	20.9	20.0	104	72 - 131
1,1,2-Trichloroethane	20.4	20.0	102	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.7	20.0	98	71 - 134
1,1-Dichloroethane (1,1-DCA)	23.8	20.0	119	76 - 122
1,1-Dichloroethene (1,1-DCE)	20.8	20.0	104	72 - 129
1,2,4-Trichlorobenzene	20.5	20.0	102	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.3	20.0	92	62 - 131
1,2-Dibromoethane	20.7	20.0	104	78 - 125
1,2-Dichlorobenzene	19.5	20.0	98	79 - 124
1,2-Dichloroethane	24.6	20.0	123	78 - 126
1,2-Dichloropropane	20.4	20.0	102	80 - 123
1,3-Dichlorobenzene	20.3	20.0	102	78 - 124
1,4-Dichlorobenzene	20.0	20.0	100	78 - 123
n-Butanol	1060	1000	106	70 - 130
2-Butanone (MEK)	24.2	20.0	121	60 - 133
2-Hexanone	19.4	20.0	97	61 - 131
4-Methyl-2-pentanone	19.6	20.0	98	61 - 132
Acetone	20.2	20.0	101	59 - 140
Benzene	20.2	20.0	101	78 - 121
Bromodichloromethane	22.0	20.0	110	80 - 125
Bromoform	20.1	20.0	100	73 - 132
Bromomethane	19.4	20.0	97	57 - 144
Carbon Disulfide	20.1	20.0	101	59 - 138
Carbon Tetrachloride	21.0	20.0	105	69 - 135
Chlorobenzene	20.5	20.0	103	80 - 121
Chloroethane	22.2	20.0	111	71 - 130
Chloroform	23.3	20.0	117	78 - 125
Chloromethane	24.1	20.0	121	62 - 133
Cyclohexane	19.4	20.0	97	67 - 127
Dibromochloromethane	20.1	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	21.5	20.0	107	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/22/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243340

Analyte Name	Lab Control Sample RQ1103556-04 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.6	20.0	103	75 - 125
Ethylbenzene	21.1	20.0	105	78 - 123
Isopropylbenzene (Cumene)	23.7	20.0	119	73 - 133
Methyl Acetate	22.4	20.0	112	57 - 157
Methyl tert-Butyl Ether	21.9	20.0	110	75 - 126
Methylcyclohexane	19.5	20.0	97	64 - 133
Styrene	20.9	20.0	105	80 - 132
Tetrachloroethene (PCE)	20.3	20.0	101	72 - 131
Toluene	20.5	20.0	102	78 - 122
Trichloroethene (TCE)	20.7	20.0	104	74 - 127
Trichlorofluoromethane (CFC 11)	24.6	20.0	123	71 - 139
Vinyl Chloride	24.8	20.0	124	71 - 136
cis-1,2-Dichloroethene	22.3	20.0	111	78 - 122
cis-1,3-Dichloropropene	19.9	20.0	100	77 - 125
m,p-Xylenes	41.8	40.0	105	79 - 126
n-Butyl Acetate	18.6	20.0	93	54 - 127
o-Xylene	20.3	20.0	102	79 - 126
trans-1,2-Dichloroethene	21.3	20.0	107	75 - 121
trans-1,3-Dichloropropene	20.3	20.0	102	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/23/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243343

Analyte Name	Lab Control Sample RQ1103557-04 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	21.7	20.0	109	72 - 128
1,1,2,2-Tetrachloroethane	20.2	20.0	101	72 - 131
1,1,2-Trichloroethane	20.0	20.0	100	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.5	20.0	93	71 - 134
1,1-Dichloroethane (1,1-DCA)	22.7	20.0	114	76 - 122
1,1-Dichloroethene (1,1-DCE)	19.7	20.0	98	72 - 129
1,2,4-Trichlorobenzene	20.3	20.0	102	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.5	20.0	87	62 - 131
1,2-Dibromoethane	20.0	20.0	100	78 - 125
1,2-Dichlorobenzene	20.1	20.0	100	79 - 124
1,2-Dichloroethane	23.0	20.0	115	78 - 126
1,2-Dichloropropane	19.6	20.0	98	80 - 123
1,3-Dichlorobenzene	19.8	20.0	99	78 - 124
1,4-Dichlorobenzene	20.3	20.0	101	78 - 123
n-Butanol	1110	1000	111	70 - 130
2-Butanone (MEK)	24.8	20.0	124	60 - 133
2-Hexanone	20.6	20.0	103	61 - 131
4-Methyl-2-pentanone	18.9	20.0	95	61 - 132
Acetone	23.1	20.0	116	59 - 140
Benzene	19.5	20.0	97	78 - 121
Bromodichloromethane	21.5	20.0	107	80 - 125
Bromoform	18.6	20.0	93	73 - 132
Bromomethane	20.1	20.0	101	57 - 144
Carbon Disulfide	19.3	20.0	97	59 - 138
Carbon Tetrachloride	20.7	20.0	104	69 - 135
Chlorobenzene	19.8	20.0	99	80 - 121
Chloroethane	21.6	20.0	108	71 - 130
Chloroform	22.0	20.0	110	78 - 125
Chloromethane	23.2	20.0	116	62 - 133
Cyclohexane	18.5	20.0	92	67 - 127
Dibromochloromethane	19.2	20.0	96	78 - 133
Dichlorodifluoromethane (CFC 12)	19.9	20.0	100	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/23/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243343

Lab Control Sample
RQ1103557-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.5	20.0	102	75 - 125
Ethylbenzene	20.5	20.0	102	78 - 123
Isopropylbenzene (Cumene)	23.8	20.0	119	73 - 133
Methyl Acetate	22.0	20.0	110	57 - 157
Methyl tert-Butyl Ether	21.6	20.0	108	75 - 126
Methylcyclohexane	18.8	20.0	94	64 - 133
Styrene	20.5	20.0	103	80 - 132
Tetrachloroethene (PCE)	18.8	20.0	94	72 - 131
Toluene	20.0	20.0	100	78 - 122
Trichloroethene (TCE)	19.5	20.0	97	74 - 127
Trichlorofluoromethane (CFC 11)	23.7	20.0	118	71 - 139
Vinyl Chloride	24.3	20.0	122	71 - 136
cis-1,2-Dichloroethene	22.3	20.0	111	78 - 122
cis-1,3-Dichloropropene	19.7	20.0	98	77 - 125
m,p-Xylenes	40.5	40.0	101	79 - 126
n-Butyl Acetate	17.4	20.0	87	54 - 127
o-Xylene	19.9	20.0	100	79 - 126
trans-1,2-Dichloroethene	21.0	20.0	105	75 - 121
trans-1,3-Dichloropropene	19.6	20.0	98	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/23/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243450

Lab Control Sample
RQ1103581-02

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
1,1,1-Trichloroethane (TCA)	19.4	20.0	97		72 - 128
1,1,2,2-Tetrachloroethane	24.7	20.0	124		72 - 131
1,1,2-Trichloroethane	20.5	20.0	103		80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.1	20.0	86		71 - 134
1,1-Dichloroethane (1,1-DCA)	20.0	20.0	100		76 - 122
1,1-Dichloroethene (1,1-DCE)	17.6	20.0	88		72 - 129
1,2,4-Trichlorobenzene	21.5	20.0	107		70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.9	20.0	99		62 - 131
1,2-Dibromoethane	20.0	20.0	100		78 - 125
1,2-Dichlorobenzene	21.1	20.0	105		79 - 124
1,2-Dichloroethane	22.0	20.0	110		78 - 126
1,2-Dichloropropane	21.5	20.0	108		80 - 123
1,3-Dichlorobenzene	20.9	20.0	104		78 - 124
1,4-Dichlorobenzene	20.8	20.0	104		78 - 123
n-Butanol	1390	1000	138	*	70 - 130
2-Butanone (MEK)	17.4	20.0	87		60 - 133
2-Hexanone	17.9	20.0	89		61 - 131
4-Methyl-2-pentanone	18.2	20.0	91		61 - 132
Acetone	19.1	20.0	96		59 - 140
Benzene	19.3	20.0	96		78 - 121
Bromodichloromethane	20.6	20.0	103		80 - 125
Bromoform	21.1	20.0	105		73 - 132
Bromomethane	21.4	20.0	107		57 - 144
Carbon Disulfide	20.0	20.0	100		59 - 138
Carbon Tetrachloride	19.7	20.0	98		69 - 135
Chlorobenzene	20.1	20.0	100		80 - 121
Chloroethane	19.2	20.0	96		71 - 130
Chloroform	20.5	20.0	102		78 - 125
Chloromethane	17.6	20.0	88		62 - 133
Cyclohexane	19.0	20.0	95		67 - 127
Dibromochloromethane	21.2	20.0	106		78 - 133
Dichlorodifluoromethane (CFC 12)	22.8	20.0	114		53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/23/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243450

	Lab Control Sample RQ1103581-02			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Dichloromethane	19.0	20.0	95	75 - 125
Ethylbenzene	19.7	20.0	98	78 - 123
Isopropylbenzene (Cumene)	19.9	20.0	99	73 - 133
Methyl Acetate	20.2	20.0	101	57 - 157
Methyl tert-Butyl Ether	19.2	20.0	96	75 - 126
Methylcyclohexane	22.3	20.0	111	64 - 133
Styrene	19.4	20.0	97	80 - 132
Tetrachloroethene (PCE)	19.5	20.0	97	72 - 131
Toluene	19.4	20.0	97	78 - 122
Trichloroethene (TCE)	19.3	20.0	97	74 - 127
Trichlorofluoromethane (CFC 11)	21.7	20.0	109	71 - 139
Vinyl Chloride	21.2	20.0	106	71 - 136
cis-1,2-Dichloroethene	18.6	20.0	93	78 - 122
cis-1,3-Dichloropropene	18.2	20.0	91	77 - 125
m,p-Xylenes	39.5	40.0	99	79 - 126
n-Butyl Acetate	18.2	20.0	91	54 - 127
o-Xylene	19.0	20.0	95	79 - 126
trans-1,2-Dichloroethene	18.6	20.0	93	75 - 121
trans-1,3-Dichloropropene	18.3	20.0	91	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243441

Lab Control Sample
RQ1103576-10

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.5	20.0	98	72 - 128
1,1,2,2-Tetrachloroethane	19.0	20.0	95	72 - 131
1,1,2-Trichloroethane	18.9	20.0	94	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.8	20.0	84	71 - 134
1,1-Dichloroethane (1,1-DCA)	20.9	20.0	104	76 - 122
1,1-Dichloroethene (1,1-DCE)	17.3	20.0	87	72 - 129
1,2,4-Trichlorobenzene	18.9	20.0	94	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.1	20.0	85	62 - 131
1,2-Dibromoethane	19.2	20.0	96	78 - 125
1,2-Dichlorobenzene	18.0	20.0	90	79 - 124
1,2-Dichloroethane	22.1	20.0	110	78 - 126
1,2-Dichloropropane	18.4	20.0	92	80 - 123
1,3-Dichlorobenzene	18.1	20.0	91	78 - 124
1,4-Dichlorobenzene	18.0	20.0	90	78 - 123
n-Butanol	1070	1000	107	70 - 130
2-Butanone (MEK)	24.3	20.0	122	60 - 133
2-Hexanone	19.1	20.0	95	61 - 131
4-Methyl-2-pentanone	19.4	20.0	97	61 - 132
Acetone	22.4	20.0	112	59 - 140
Benzene	18.6	20.0	93	78 - 121
Bromodichloromethane	20.1	20.0	101	80 - 125
Bromoform	17.7	20.0	88	73 - 132
Bromomethane	17.7	20.0	88	57 - 144
Carbon Disulfide	20.0	20.0	100	59 - 138
Carbon Tetrachloride	18.5	20.0	93	69 - 135
Chlorobenzene	18.2	20.0	91	80 - 121
Chloroethane	19.2	20.0	96	71 - 130
Chloroform	20.8	20.0	104	78 - 125
Chloromethane	20.7	20.0	103	62 - 133
Cyclohexane	19.2	20.0	96	67 - 127
Dibromochloromethane	18.3	20.0	92	78 - 133
Dichlorodifluoromethane (CFC 12)	17.5	20.0	87	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243441

Lab Control Sample
RQ1103576-10

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.7	20.0	93	75 - 125
Ethylbenzene	18.5	20.0	93	78 - 123
Isopropylbenzene (Cumene)	20.3	20.0	102	73 - 133
Methyl Acetate	21.8	20.0	109	57 - 157
Methyl tert-Butyl Ether	20.2	20.0	101	75 - 126
Methylcyclohexane	19.2	20.0	96	64 - 133
Styrene	18.5	20.0	93	80 - 132
Tetrachloroethene (PCE)	16.5	20.0	83	72 - 131
Toluene	18.2	20.0	91	78 - 122
Trichloroethene (TCE)	18.4	20.0	92	74 - 127
Trichlorofluoromethane (CFC 11)	20.5	20.0	102	71 - 139
Vinyl Chloride	20.9	20.0	104	71 - 136
cis-1,2-Dichloroethene	20.7	20.0	104	78 - 122
cis-1,3-Dichloropropene	18.3	20.0	92	77 - 125
m,p-Xylenes	36.6	40.0	91	79 - 126
n-Butyl Acetate	17.8	20.0	89	54 - 127
o-Xylene	17.9	20.0	89	79 - 126
trans-1,2-Dichloroethene	18.8	20.0	94	75 - 121
trans-1,3-Dichloropropene	18.5	20.0	92	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243554

Analyte Name	Lab Control Sample RQ1103801-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.1	20.0	90	72 - 128
1,1,2,2-Tetrachloroethane	25.5	20.0	128	72 - 131
1,1,2-Trichloroethane	19.5	20.0	97	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.7	20.0	78	71 - 134
1,1-Dichloroethane (1,1-DCA)	18.7	20.0	93	76 - 122
1,1-Dichloroethene (1,1-DCE)	15.9	20.0	79	72 - 129
1,2,4-Trichlorobenzene	20.8	20.0	104	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	20.6	20.0	103	62 - 131
1,2-Dibromoethane	19.9	20.0	99	78 - 125
1,2-Dichlorobenzene	19.8	20.0	99	79 - 124
1,2-Dichloroethane	21.1	20.0	105	78 - 126
1,2-Dichloropropane	19.6	20.0	98	80 - 123
1,3-Dichlorobenzene	19.2	20.0	96	78 - 124
1,4-Dichlorobenzene	19.4	20.0	97	78 - 123
n-Butanol	1270	1000	127	70 - 130
2-Butanone (MEK)	17.1	20.0	86	60 - 133
2-Hexanone	17.2	20.0	86	61 - 131
4-Methyl-2-pentanone	17.3	20.0	87	61 - 132
Acetone	18.1	20.0	90	59 - 140
Benzene	17.6	20.0	88	78 - 121
Bromodichloromethane	20.3	20.0	102	80 - 125
Bromoform	21.2	20.0	106	73 - 132
Bromomethane	20.1	20.0	100	57 - 144
Carbon Disulfide	20.5	20.0	102	59 - 138
Carbon Tetrachloride	18.3	20.0	92	69 - 135
Chlorobenzene	18.6	20.0	93	80 - 121
Chloroethane	16.7	20.0	84	71 - 130
Chloroform	19.5	20.0	98	78 - 125
Chloromethane	16.1	20.0	80	62 - 133
Cyclohexane	17.3	20.0	86	67 - 127
Dibromochloromethane	21.9	20.0	109	78 - 133
Dichlorodifluoromethane (CFC 12)	21.0	20.0	105	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243554

Analyte Name	Lab Control Sample RQ1103801-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.2	20.0	91	75 - 125
Ethylbenzene	17.2	20.0	86	78 - 123
Isopropylbenzene (Cumene)	16.4	20.0	82	73 - 133
Methyl Acetate	19.6	20.0	98	57 - 157
Methyl tert-Butyl Ether	18.8	20.0	94	75 - 126
Methylcyclohexane	20.6	20.0	103	64 - 133
Styrene	17.2	20.0	86	80 - 132
Tetrachloroethene (PCE)	17.1	20.0	85	72 - 131
Toluene	18.0	20.0	90	78 - 122
Trichloroethene (TCE)	17.4	20.0	87	74 - 127
Trichlorofluoromethane (CFC 11)	19.9	20.0	100	71 - 139
Vinyl Chloride	18.7	20.0	94	71 - 136
cis-1,2-Dichloroethene	17.1	20.0	86	78 - 122
cis-1,3-Dichloropropene	17.2	20.0	86	77 - 125
m,p-Xylenes	34.3	40.0	86	79 - 126
n-Butyl Acetate	16.9	20.0	84	54 - 127
o-Xylene	16.4	20.0	82	79 - 126
trans-1,2-Dichloroethene	16.4	20.0	82	75 - 121
trans-1,3-Dichloropropene	17.9	20.0	89	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/26/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243491

Analyte Name	Lab Control Sample RQ1103593-10 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	21.9	20.0	110	72 - 128
1,1,2,2-Tetrachloroethane	20.5	20.0	103	72 - 131
1,1,2-Trichloroethane	20.4	20.0	102	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.1	20.0	95	71 - 134
1,1-Dichloroethane (1,1-DCA)	23.9	20.0	120	76 - 122
1,1-Dichloroethene (1,1-DCE)	20.0	20.0	100	72 - 129
1,2,4-Trichlorobenzene	19.8	20.0	99	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84	62 - 131
1,2-Dibromoethane	20.2	20.0	101	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	24.4	20.0	122	78 - 126
1,2-Dichloropropane	19.8	20.0	99	80 - 123
1,3-Dichlorobenzene	19.0	20.0	95	78 - 124
1,4-Dichlorobenzene	19.2	20.0	96	78 - 123
n-Butanol	1060	1000	106	70 - 130
2-Butanone (MEK)	25.5	20.0	128	60 - 133
2-Hexanone	21.8	20.0	109	61 - 131
4-Methyl-2-pentanone	20.4	20.0	102	61 - 132
Acetone	21.2	20.0	106	59 - 140
Benzene	19.8	20.0	99	78 - 121
Bromodichloromethane	22.1	20.0	111	80 - 125
Bromoform	18.4	20.0	92	73 - 132
Bromomethane	18.7	20.0	93	57 - 144
Carbon Disulfide	23.0	20.0	115	59 - 138
Carbon Tetrachloride	20.7	20.0	104	69 - 135
Chlorobenzene	19.5	20.0	97	80 - 121
Chloroethane	21.9	20.0	109	71 - 130
Chloroform	23.0	20.0	115	78 - 125
Chloromethane	24.2	20.0	121	62 - 133
Cyclohexane	19.5	20.0	98	67 - 127
Dibromochloromethane	18.5	20.0	93	78 - 133
Dichlorodifluoromethane (CFC 12)	19.8	20.0	99	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/26/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243491

Analyte Name	Lab Control Sample RQ1103593-10 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.1	20.0	106	75 - 125
Ethylbenzene	19.9	20.0	100	78 - 123
Isopropylbenzene (Cumene)	22.6	20.0	113	73 - 133
Methyl Acetate	23.2	20.0	116	57 - 157
Methyl tert-Butyl Ether	22.3	20.0	112	75 - 126
Methylcyclohexane	19.8	20.0	99	64 - 133
Styrene	20.1	20.0	101	80 - 132
Tetrachloroethene (PCE)	18.2	20.0	91	72 - 131
Toluene	19.4	20.0	97	78 - 122
Trichloroethene (TCE)	20.9	20.0	104	74 - 127
Trichlorofluoromethane (CFC 11)	23.6	20.0	118	71 - 139
Vinyl Chloride	24.2	20.0	121	71 - 136
cis-1,2-Dichloroethene	22.5	20.0	112	78 - 122
cis-1,3-Dichloropropene	19.6	20.0	98	77 - 125
m,p-Xylenes	39.4	40.0	98	79 - 126
n-Butyl Acetate	18.6	20.0	93	54 - 127
o-Xylene	19.3	20.0	96	79 - 126
trans-1,2-Dichloroethene	20.6	20.0	103	75 - 121
trans-1,3-Dichloropropene	19.6	20.0	98	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/26/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243708

Lab Control Sample
RQ1103699-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	22.2	20.0	111	72 - 128
1,1,2,2-Tetrachloroethane	22.8	20.0	114	72 - 131
1,1,2-Trichloroethane	20.8	20.0	104	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	20.0	100	71 - 134
1,1-Dichloroethane (1,1-DCA)	21.0	20.0	105	76 - 122
1,1-Dichloroethene (1,1-DCE)	21.1	20.0	106	72 - 129
1,2,4-Trichlorobenzene	24.8	20.0	124	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	22.6	20.0	113	62 - 131
1,2-Dibromoethane	21.9	20.0	109	78 - 125
1,2-Dichlorobenzene	23.8	20.0	119	79 - 124
1,2-Dichloroethane	22.3	20.0	112	78 - 126
1,2-Dichloropropane	21.8	20.0	109	80 - 123
1,3-Dichlorobenzene	23.9	20.0	119	78 - 124
1,4-Dichlorobenzene	23.9	20.0	120	78 - 123
n-Butanol	1080	1000	108	70 - 130
2-Butanone (MEK)	19.1	20.0	96	60 - 133
2-Hexanone	20.5	20.0	103	61 - 131
4-Methyl-2-pentanone	19.8	20.0	99	61 - 132
Acetone	17.1	20.0	85	59 - 140
Benzene	21.8	20.0	109	78 - 121
Bromodichloromethane	22.8	20.0	114	80 - 125
Bromoform	25.3	20.0	126	73 - 132
Bromomethane	14.2	20.0	71	57 - 144
Carbon Disulfide	22.5	20.0	112	59 - 138
Carbon Tetrachloride	22.3	20.0	112	69 - 135
Chlorobenzene	23.1	20.0	116	80 - 121
Chloroethane	21.4	20.0	107	71 - 130
Chloroform	22.2	20.0	111	78 - 125
Chloromethane	19.3	20.0	97	62 - 133
Cyclohexane	19.1	20.0	95	67 - 127
Dibromochloromethane	24.2	20.0	121	78 - 133
Dichlorodifluoromethane (CFC 12)	16.7	20.0	84	53 - 143

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/26/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243708

Lab Control Sample
RQ1103699-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.6	20.0	98	75 - 125
Ethylbenzene	23.4	20.0	117	78 - 123
Isopropylbenzene (Cumene)	26.6	20.0	133	73 - 133
Methyl Acetate	19.5	20.0	98	57 - 157
Methyl tert-Butyl Ether	20.7	20.0	103	75 - 126
Methylcyclohexane	20.0	20.0	100	64 - 133
Styrene	24.1	20.0	120	80 - 132
Tetrachloroethene (PCE)	22.9	20.0	114	72 - 131
Toluene	22.8	20.0	114	78 - 122
Trichloroethene (TCE)	22.1	20.0	111	74 - 127
Trichlorofluoromethane (CFC 11)	22.5	20.0	113	71 - 139
Vinyl Chloride	21.5	20.0	107	71 - 136
cis-1,2-Dichloroethene	22.4	20.0	112	78 - 122
cis-1,3-Dichloropropene	21.2	20.0	106	77 - 125
m,p-Xylenes	47.2	40.0	118	79 - 126
n-Butyl Acetate	22.4	20.0	112	54 - 127
o-Xylene	23.1	20.0	115	79 - 126
trans-1,2-Dichloroethene	21.0	20.0	105	75 - 121
trans-1,3-Dichloropropene	21.1	20.0	106	69 - 127

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/27/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243847

Lab Control Sample
RQ1103723-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	21.6	20.0	108	72 - 128
1,1,2,2-Tetrachloroethane	20.6	20.0	103	72 - 131
1,1,2-Trichloroethane	20.6	20.0	103	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.1	20.0	90	71 - 134
1,1-Dichloroethane (1,1-DCA)	23.9	20.0	119	76 - 122
1,1-Dichloroethene (1,1-DCE)	19.4	20.0	97	72 - 129
1,2,4-Trichlorobenzene	20.3	20.0	101	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.4	20.0	82	62 - 131
1,2-Dibromoethane	20.1	20.0	100	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	24.7	20.0	123	78 - 126
1,2-Dichloropropane	19.8	20.0	99	80 - 123
1,3-Dichlorobenzene	18.7	20.0	94	78 - 124
1,4-Dichlorobenzene	18.8	20.0	94	78 - 123
n-Butanol	1070	1000	107	70 - 130
2-Butanone (MEK)	25.6	20.0	128	60 - 133
2-Hexanone	21.2	20.0	106	61 - 131
4-Methyl-2-pentanone	18.7	20.0	94	61 - 132
Acetone	24.0	20.0	120	59 - 140
Benzene	19.6	20.0	98	78 - 121
Bromodichloromethane	21.3	20.0	106	80 - 125
Bromoform	18.7	20.0	94	73 - 132
Bromomethane	19.0	20.0	95	57 - 144
Carbon Disulfide	20.9	20.0	104	59 - 138
Carbon Tetrachloride	20.9	20.0	104	69 - 135
Chlorobenzene	19.3	20.0	96	80 - 121
Chloroethane	22.2	20.0	111	71 - 130
Chloroform	22.4	20.0	112	78 - 125
Chloromethane	22.9	20.0	115	62 - 133
Cyclohexane	19.6	20.0	98	67 - 127
Dibromochloromethane	18.9	20.0	95	78 - 133
Dichlorodifluoromethane (CFC 12)	19.7	20.0	98	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/27/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 243847

Analyte Name	Lab Control Sample RQ1103723-04 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.0	20.0	100	75 - 125
Ethylbenzene	19.8	20.0	99	78 - 123
Isopropylbenzene (Cumene)	22.3	20.0	112	73 - 133
Methyl Acetate	22.1	20.0	110	57 - 157
Methyl tert-Butyl Ether	21.7	20.0	109	75 - 126
Methylcyclohexane	20.1	20.0	100	64 - 133
Styrene	19.9	20.0	99	80 - 132
Tetrachloroethene (PCE)	18.3	20.0	91	72 - 131
Toluene	19.3	20.0	96	78 - 122
Trichloroethene (TCE)	20.3	20.0	102	74 - 127
Trichlorofluoromethane (CFC 11)	23.3	20.0	116	71 - 139
Vinyl Chloride	24.0	20.0	120	71 - 136
cis-1,2-Dichloroethene	21.5	20.0	107	78 - 122
cis-1,3-Dichloropropene	19.9	20.0	99	77 - 125
m,p-Xylenes	39.5	40.0	99	79 - 126
n-Butyl Acetate	17.2	20.0	86	54 - 127
o-Xylene	19.3	20.0	96	79 - 126
trans-1,2-Dichloroethene	20.4	20.0	102	75 - 121
trans-1,3-Dichloropropene	19.4	20.0	97	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/22/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 243146

	Lab Control Sample RQ1103472-02			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Ethane	26.3	26.1	101	55 - 165
Ethene	23.7	24.3	97	48 - 163
Methane	25.8	26.2	98	61 - 154

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/26/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 243684

Analyte Name	Lab Control Sample RQ1103670-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1103670-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	26.4	26.1	101	25.0	26.1	96	55 - 165	5	30
Ethene	23.8	24.3	98	22.6	24.3	93	48 - 163	5	30
Methane	26.7	26.2	102	25.3	26.2	97	61 - 154	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/27/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 243805

Lab Control Sample
RQ1103704-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	27.3	26.1	105	55 - 165
Ethene	24.7	24.3	102	48 - 163
Methane	27.7	26.2	105	61 - 154

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 4/28/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 243960

Analyte Name	Lab Control Sample RQ1103813-02 Result	Spike Amount	% Rec	% Rec Limits
Ethane	26.5	26.1	102	55 - 165
Ethene	24.7	24.3	102	48 - 163
Methane	26.8	26.2	102	61 - 154

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 5/ 5/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 243151

	Lab Control Sample RQ1103475-02			Duplicate Lab Control Sample RQ1103475-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.10	0.998	110	1.09	0.998	109	70 - 130	<1	30
Acetic Acid	9.83	9.97	99	9.80	9.97	98	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.98	9.98	100	10.0	9.98	100	82 - 118	<1	30
Lactic Acid	9.73	10.0	97	9.71	10.0	97	70 - 117	<1	30
Propionic Acid	10.2	9.97	102	10.2	9.97	103	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1102105
Date Analyzed: 5/ 8/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 245199

	Lab Control Sample RQ1104219-02			Duplicate Lab Control Sample RQ1104219-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.19	0.998	119	1.05	0.998	105	70 - 130	13	30
Acetic Acid	9.95	9.97	100	9.78	9.97	98	70 - 135	2	30
Butanoic Acid (Butyric Acid)	10.5	9.98	106	10.2	9.98	102	82 - 118	3	30
Lactic Acid	9.82	10.0	98	9.63	10.0	96	70 - 117	2	30
Propionic Acid	10.1	9.97	102	10.2	9.97	102	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-BW0007-038.5-201104~~				GW	0										
LC34-IW0002I-027.5-20110418	4/18/2011	1510	-001,002	GW	16	3	2	1	3	1	3	1	1	1	
LC34-IW0002D-037.5-20110418	4/18/2011	1457	003,004	GW	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001A-024.5-20110418	4/18/2011	1020	-005,006	GW	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001B-031.5-20110418	4/18/2011	1040	007,008	GW	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001C-038.5-20110418	4/18/2011	1120	009,009-010	GW	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001D-045.5-20110418	4/18/2011	1400	-011,012	GW	16	3	2	1	3	1	3	1	1	1	
~~LC34-BW0002A-024.5-201104~~				GW	0										
~~LC34-BW0002B-031.5-201104~~				GW	0										
~~LC34-BW0002C-038.5-201104~~				GW	0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

3 coolers

R1102105
GeoSyntec Consultants
ESTCP PED LC34 TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joe Bartlett	Printed Name: FEDEX	Printed Name:	Printed Name: Gregory LaTorre
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 4/18/11 ~1700	Date/Time:	Date/Time:	Date/Time: 4/19/11 0941

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-BW0002D-045.5-201104~~				GW	0										
~~LC34-BW0003A-024.5-201104~~				GW	0										
~~LC34-BW0003B-031.5-201104~~ JVB				GW	0										
~~LC34-BW0003C-038.5-201104~~				GW	0										
~~LC34-BW0003D-045.5-201104~~				GW	0										
~~LC34-RW0008-052.0-201104~~				GW	0										
LC34-IW0002D1-050.0-20110418	4/18/2011	1535	-013,014	GW	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001E-052.5-20110418	4/18/2011	1220	-015,016	GW	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001F-059.5-20110418	4/18/2011	1150	017,018	GW	16	3	2	1	3	1	3	1	1	1	
~~LC34-BW0002E-052.5-201104~~ JVB				GW	0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

3 coolers

R1102105
GeoSyntec Consultants
ESTCP PED LC34 TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joe Bartlett	Printed Name: FED EX	Printed Name:	Printed Name: Gregory LaFave
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 4/18/11 – 1700	Date/Time:	Date/Time:	Date/Time: 4/19/11 0941

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-BW0002F-059.5-201104~~				GW	0										
~~LC34-BW0003E-052.5-201104~~				GW	0										
~~LC34-BW0003F-059.5-201104~~				GW	0										
LC34-IW0076-075.0-20110418	4/18/2011	1435	-019, 020	GW	13	3	2.	1	3.		3			1	
LC34-IW0067D-040.5-20110418	4/18/2011	1132	-021	GW	6	3			3.						
LC34-IW0067D1-068.0-20110418	4/18/2011	1219	-022	GW	6	3			3.						
LC34-IW0070D-040.5-20110418	4/18/2011	1021	-023	GW	6	3			3.						
LC34-IW0070D1-070.0-20110418	4/18/2011	1056	-024	GW	6	3			3.						
LC34-IW0071D-040.5-20110418	4/18/2011	1356	-025	GW	6	3			3.						
LC34-IW0071D1-070.0-20110418	4/18/2011	1423	-026	GW	6	3			3.						

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

3 coolers

R1102105

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature: [signature]
Printed Name: Joe Bartlett	Printed Name: FEDEX	Printed Name:	Printed Name: Gregory LaFore
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 4/18/11 - 1700	Date/Time:	Date/Time:	Date/Time: 4/19/11 0941

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-EF0005-000.0-20110418	4/18/2011	1525	-027	GW	3	3									
LC34-EF0006-000.0-20110418	4/18/2011	1525	-028	GW	3	3									
LC34-TB-20110418-01	4/18/2011	NA	-029	GW	3	3									
				GW	0										
				GW	0										
				GW	0										
				GW	0										
				GW	0										
				GW	0										
				GW	0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

3 coolers

R1102015

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature: [signature]
Printed Name: Joe Bartlett	Printed Name: FEDEX	Printed Name:	Printed Name: Gregory LaFave
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 4/18/11 1700	Date/Time:	Date/Time:	Date/Time: 4/19/11 0941

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1102105

Cooler received on 4/19/11 by: KB **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	(NO)	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)**	(NO)			
6.	Where did the bottles originate?	VOA, Metabolic, TOC		CAS/ROC,	CLIENT	
7.	Temperature of cooler(s) upon receipt:	7.0 **	1.0	2.0		
	Is the temperature within 0° - 6° C?:	Yes	(Yes)	(Yes)	Yes	Yes
	If No, Explain Below	(No)	No	No	No	No

** not enough ice

Date/Time Temperatures Taken: 4/19/11 0945

Thermometer ID: (IR GUN#3) IR GUN#4 Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 4/19/11

Cooler Breakdown: Date: 4/19/11 Time: 1400 by: LBD

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	(NO)*
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC103051F	2/16				
≤2	HNO_3								
≤2	H_2SO_4			WC103001A	2/12				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	BDB26109E	3/12				
	HCl	*	*	4110020	3/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 0-319-004, 0-235-003, 031411-2L, 122710-ZZZ

Other Comments:

VOA - Headspace BW0001E, LC34-EF0006-0020, IW0071D1 } 1 vial ea.

Sulfide - Headspace BW0001D, BW0001B, BW0001C, IW0002I } all

* 8260 VOA label for lot. -011 labeled BW0001. Hts lot. was determined based on sample date + time + process of elimination

H_3PO_4: WC92115F exp 11/14

PC Secondary Review: KB 5/17/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: JMB Bartlett 4/19

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
					Analysis Requested										
LC34-RW0007-038.5-20110419	4/19/2011	917	-030, 031	GW	16	3	2	1	3	1	3	1	1	1	
LC34-RW0007-D-038.5-20110419-D	4/19/2011	917	-032, 033 CB 4/21/11	GW	15	3	2		3	1	3	1	1	1	
LC34-RW0008-038.5-20110419	4/19/2011	1027	-034, 035	GW	16	3	2	1	3	1	3	1	1	1	
LC34-RW0008-D-038.5-20110419-D	4/19/2011	1027	-036 CB 4/21/11	GW	3	3									
LC34-BW0002A-024.5-20110419	4/19/2011	915	-037	GW	12	3	2	1	3		3				
LC34-BW0002B-031.5-20110419	4/19/2011	1020	-038	GW	12	3	2	1	3		3				
LC34-BW0002C-038.5-20110419	4/19/2011	1105	-039	GW	12	3	2	1	3	X	3	X			arbledospuema MB 4/27
LC34-BW0002D-045.5-20110419	4/19/2011	1305	-040	GW	12	3	2	1	3		3				
LC34-BW0002E-052.5-20110419	4/19/2011	1350	-041	GW	12	3	2	1	3		3				
LC34-BW0002F-059.5-20110419	4/19/2011	1445	-042	GW	12	3	2	1	3		3				

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

x3 coolers

Invoice Information

P.O. #

Bill to: TR0272

R1102105
GeoSyntec Consultants
ESTCP PED LC34 TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: JMB Bartlett	Signature: FEDEX	Signature:	Signature: Christine M Kutter
Printed Name: J. Bartlett	Printed Name:	Printed Name:	Printed Name: Christine M Kutter
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 4/19/11 1710	Date/Time:	Date/Time:	Date/Time: 4/20/11 1035

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-BW0003A-024.5-20110419	4/19/2011	1136	-043	GW	12	3	2	1	3		3				
LC34-BW0003B-031.5-20110419	4/19/2011	1323	-044	GW	12	3	2	1	3		3				
LC34-BW0003B-D-031.5-20110419	4/19/2011	1323	-045 KB 4/21/11	GW	3	3									
LC34-BW0003C-038.5-20110419	4/19/2011	1443	-046	GW	12	3	2	1	3	X	3	X			added dup per KB 4/20/11
LC34-BW0003D-045.5-20110419	4/19/2011	1245	-047	GW	12	3	2	1	3		3				
LC34-BW0003D-D-045.5-20110419	4/19/2011	1245	-048	GW	3	3									
LC34-BW0003E-052.5-20110419	4/19/2011	1406	-049	GW	12	3	2	1	3		3				
LC34-BW0003F-059.5-20110419	4/19/2011	1519	-050	GW	12	3	2	1	3		3				
				GW	0										
				GW	0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1102105
GeoSyntec Consultants
ESTCP PED LC34 TR0272

RELINQUISHED BY:

Signature:

Printed Name: J. Bartlett

Firm: Geosyntec

Date/Time: 4/19/11 – 1710

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Christine M Kutter

Firm: CAS

Date/Time: 4/20/11 1035

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: J. Bartlett

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-FD-20110419-01	4/19/2011	NA	-051	GW	3	3									
LC34-FD-20110419-02	4/19/2011	NA	-052	GW	2		2								
LC34-FD-20110419-03	4/19/2011	NA	-053	GW	3						3				
LC34-FD-20110419-04	4/19/2011	NA	-054	GW	3				3						
LC34-FD-20110419-05	4/19/2011	NA	-055	GW	1					1					
LC34-FD-20110419-06	4/19/2011	NA	-056	GW	1							1			
LC34-FD-20110419-07	4/19/2011	NA	-057	GW	1								1		
LC34-FD-20110419-08	4/19/2011	NA	-058	GW	1									1	
LC34-FD-20110419-09	4/19/2011	NA	-059	GW	2		2								
LC34-FD-20110419-10	4/19/2011	NA	-060	GW	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

x3 coolers

R1102105
GeoSyntec Consultants
ESTCP PED LC34 TR0272

RELINQUISHED BY:

Signature: J. Bartlett

Printed Name: J. Bartlett

Firm: Geosyntec

Date/Time: 4/19/11 1710

RECEIVED BY:

Signature: FedEx

Printed Name: FedEx

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: Christine M Kuntzy

Printed Name: Christine M Kuntzy

Firm: CAS

Date/Time: 4/20/11 1035

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-FD-20110419-11	4/19/2011	NA	-0601	GW	3						3				
LC34-FD-20110419-12	4/19/2011	NA	-0602	GW	3				3						
LC34-FD-20110419-13	4/19/2011	NA	-0603	GW	3	3									
LC34-TB-20110419-01	4/19/2011	NA	-0604	GW	3	3									
LC34-TB-20110419-02	4/19/2011	NA	-0605	GW	3	3									
				GW	0										
				GW	0										
				GW	0										
				GW	0										
				GW	0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

x3 coolers

R1102105

RELINQUISHED BY:

Signature: [signature]

Printed Name: D. Bartlett

Firm: Geosyntec

Date/Time: 4/19/11 1710

RECEIVED BY:

Signature: FEDEX

Printed Name:

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: Christine M Kuster

Printed Name: Christine M Kuster

Firm: CAS

Date/Time: 4/20/11 1035

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1102105.

Cooler received on 4/20/11 by: CMK COURIER: CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO		
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	(NO)		
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO		
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A	
5.	Were **Ice or Ice packs** present?	(YES)	NO		
6.	Where did the bottles originate?	CAS/ROC	CLIENT		
7.	Temperature of cooler(s) upon receipt:	2.8	3.0°	3.6°	____ ____
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	(Yes)	Yes Yes
	If No, Explain Below	No	No	No	No No

- post-its w/ missing sampling info added - see below

Date/Time Temperatures Taken: 4/20/11 1105

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: ____

PC Secondary Review: RB 4/20/11

Cooler Breakdown: Date: 4/20/11 Time: 1400-1500 by: (JT)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	(NO)	see note
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated			(N/A)

Explain any discrepancies: ____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC1036S1F	2/16				
≤2	HNO_3			WC921/5F	11/14				
≤2	H_2SO_4			WC1030/1A	3/12				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	BDB26109E	3/12				
	HCl	*	*	4/10020	3/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: ____

Bottle lot numbers: 0-235-003, 0-319-004, 031411-2K, 122710-777

Other Comments:

4/21/11 KB

metabolic acids 2 vials each * 1 vial only 0.6→1.5

8260 air bubbles* - BW002B BW002D, FD-20110419-10

RSK 175 BW002F BW002F, BW002E, BW002A, FD20110419-01

BW002A

BW002C FD-20110419-03 * See Extra Temp Sheet *

PC Secondary Review: KBS 4/27/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Cooler Receipt And Preservation Check Form

Project/Client_____ Folder Number K1102105 continued

Cooler received on_____ by:_____ **COURIER:** CAS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO	
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO	
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	N/A
5.	Were **Ice** or **Ice packs** present?	YES	NO	
6.	Where did the bottles originate?	CAS/ROC, CLIENT		
7.	Temperature of cooler(s) upon receipt:	_____	_____	_____ _____ _____
	Is the temperature within 0° - 6° C?:	Yes	Yes	Yes Yes Yes
	If No, Explain Below	No	No	No No No

Date/Time Temperatures Taken: _____

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples:_____

PC Secondary Review: _____

Cooler Breakdown: Date :_____ Time:_____ by:_____

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO	
2.	Did all bottle labels and tags agree with custody papers?	YES	NO	
3.	Were correct containers used for the tests indicated?	YES	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	N/A

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers:_____

Other Comments:

* Rec. bottle for Br, I (with no ID on it); ~~Missing BW0027 Br, I bottle.~~

* " Full test list for BW002C, BW003C, w/o diss. metals; chain only says VOA, VFA, RSK, BR, I, TOC

* Missing Br, I bottle for ~~BW0027~~ and BW002F

** assumed unlabelled Br, I is BW002F only unlabelled missing bottle.

PC Secondary Review: 5/17/11 KB

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

July 25, 2011 Service Request No: R1103564

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34 PED/TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on June 24, 2011. For your reference, these analyses have been assigned our service request number **R1103564**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1103564
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	6/24/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Eight (8) water samples were collected by the client on 6/21-22/11 and were received for analysis at Columbia Analytical Services on 6/24/11 via a national courier. The "Test Blank" was placed on hold as per instructions in an email from the client on 6/24/11. Only VOC vials were received for this sample, though the chain of custody indicated Bromide and Iodide also. For location BATCH29-20110622-0745 (R1103564-004), the bottle for Bromide and Iodide was labeled as BATCH26-20110622-0745. The samples were received at a cooler temperature of 3.8°C within the guidelines of 0-6°C.

Volatile Organic Compounds

Seven (7) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (RSK) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All samples were analyzed within 7 days from collection, the holding time for unpreserved vials which were to be used for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

The Laboratory Method Blanks were free from contamination except for a 1,2,4-Trichlorobenzene hit in the 6/27/11 blank and 1,2,4-Trichlorobenzen and Chloroform hits in the 6/28/11 blank. The 1,2,4-Trichlorobenzene hit for BATCH39-20110622-1150 has been flagged as "B" to indicate possible contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Seven (7) water samples were analyzed for Bromide and four (4) samples were analyzed for Iodide by IC method 300.0.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

Approved by Karen Burke **Date** 7/26/11

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burchett Date 7/26/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1103564

Lab ID	Client ID
R1103564-001	BATCH10-20110621-0825
R1103564-002	BATCH17-20110621-1127
R1103564-003	BATCH26-20110621-1725
R1103564-004	BATCH29-20110622-0745
R1103564-005	BATCH39-20110622-1150
R1103564-006	BATCH40-20110622-1458
R1103564-007	BATCH49-20110622-1655

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 0825
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH10-20110621-0825		
Lab Code:	R1103564-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**65.3**		mg/L	2.0	20	NA	6/27/11 16:43	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 0825
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH10-20110621-0825	**Units:**	µg/L
Lab Code:	R1103564-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100000	U	100000	4600	20000	NA	6/27/11 16:54		251477	
1,1,2,2-Tetrachloroethane	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
1,1,2-Trichloroethane	100000	U	100000	4600	20000	NA	6/27/11 16:54		251477	
1,1,2-Trichloro-1,2,2-trifluoroethane	100000	U	100000	6200	20000	NA	6/27/11 16:54		251477	
1,1-Dichloroethane (1,1-DCA)	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
1,1-Dichloroethene (1,1-DCE)	100000	U	100000	5800	20000	NA	6/27/11 16:54		251477	
1,2,4-Trichlorobenzene	100000	U	100000	5200	20000	NA	6/27/11 16:54		251477	
1,2-Dibromo-3-chloropropane (DBCP)	100000	U	100000	7600	20000	NA	6/27/11 16:54		251477	
1,2-Dibromoethane	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
1,2-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
1,2-Dichloroethane	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
1,2-Dichloropropane	100000	U	100000	5700	20000	NA	6/27/11 16:54		251477	
1,3-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
1,4-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
n-Butanol	1000000	U	1000000	210000	20000	NA	6/27/11 16:54		251477	
2-Butanone (MEK)	200000	U	200000	11000	20000	NA	6/27/11 16:54		251477	
2-Hexanone	200000	U	200000	7000	20000	NA	6/27/11 16:54		251477	
4-Methyl-2-pentanone	200000	U	200000	5400	20000	NA	6/27/11 16:54		251477	
Acetone	400000	U	400000	20000	20000	NA	6/27/11 16:54		251477	
Benzene	100000	U	100000	4200	20000	NA	6/27/11 16:54		251477	
Bromodichloromethane	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Bromoform	100000	U	100000	5400	20000	NA	6/27/11 16:54		251477	
Bromomethane	100000	U	100000	6200	20000	NA	6/27/11 16:54		251477	
Carbon Disulfide	200000	U	200000	4000	20000	NA	6/27/11 16:54		251477	
Carbon Tetrachloride	100000	U	100000	5400	20000	NA	6/27/11 16:54		251477	
Chlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Chloroethane	100000	U	100000	6200	20000	NA	6/27/11 16:54		251477	
Chloroform	100000	U	100000	4400	20000	NA	6/27/11 16:54		251477	
Chloromethane	100000	U	100000	4800	20000	NA	6/27/11 16:54		251477	
Cyclohexane	200000	U	200000	4800	20000	NA	6/27/11 16:54		251477	
Dibromochloromethane	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Dichlorodifluoromethane (CFC 12)	100000	U	100000	12000	20000	NA	6/27/11 16:54		251477	
Dichloromethane	100000	U	100000	4400	20000	NA	6/27/11 16:54		251477	
Ethylbenzene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Isopropylbenzene (Cumene)	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Methyl Acetate	200000	U	200000	4600	20000	NA	6/27/11 16:54		251477	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 0825
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH10-20110621-0825	**Units:**	µg/L
Lab Code:	R1103564-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Methylcyclohexane	200000	U	200000	5000	20000	NA	6/27/11 16:54		251477	
Styrene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Tetrachloroethene (PCE)	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Toluene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Trichloroethene (TCE)	100000	U	100000	4600	20000	NA	6/27/11 16:54		251477	
Trichlorofluoromethane (CFC 11)	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
Vinyl Chloride	100000	U	100000	4600	20000	NA	6/27/11 16:54		251477	
cis-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
cis-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
m,p-Xylenes	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
n-Butyl Acetate	**2500000**		100000	4200	20000	NA	6/27/11 16:54		251477	
o-Xylene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
trans-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	
trans-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/27/11 16:54		251477	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/27/11 16:54	
Dibromofluoromethane	107	89-119	6/27/11 16:54	
Toluene-d8	108	87-121	6/27/11 16:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 1127
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH17-20110621-1127		
Lab Code:	R1103564-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**111**		mg/L	3.0	30	NA	6/27/11 16:57	
Iodide	300.0	**70**		mg/L	20	100	NA	7/12/11 14:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 1127
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH17-20110621-1127	**Units:**	µg/L
Lab Code:	R1103564-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analysis Lot: 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50000	U	50000	2300	10000	NA	6/28/11 12:53		251657	
1,1,2,2-Tetrachloroethane	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
1,1,2-Trichloroethane	50000	U	50000	2300	10000	NA	6/28/11 12:53		251657	
1,1,2-Trichloro-1,2,2-trifluoroethane	50000	U	50000	3100	10000	NA	6/28/11 12:53		251657	
1,1-Dichloroethane (1,1-DCA)	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
1,1-Dichloroethene (1,1-DCE)	50000	U	50000	2900	10000	NA	6/28/11 12:53		251657	
1,2,4-Trichlorobenzene	50000	U	50000	2600	10000	NA	6/28/11 12:53		251657	
1,2-Dibromo-3-chloropropane (DBCP)	50000	U	50000	3800	10000	NA	6/28/11 12:53		251657	
1,2-Dibromoethane	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
1,2-Dichlorobenzene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
1,2-Dichloroethane	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
1,2-Dichloropropane	50000	U	50000	2900	10000	NA	6/28/11 12:53		251657	
1,3-Dichlorobenzene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
1,4-Dichlorobenzene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
n-Butanol	500000	U	500000	110000	10000	NA	6/28/11 12:53		251657	
2-Butanone (MEK)	100000	U	100000	5100	10000	NA	6/28/11 12:53		251657	
2-Hexanone	100000	U	100000	3500	10000	NA	6/28/11 12:53		251657	
4-Methyl-2-pentanone	100000	U	100000	2700	10000	NA	6/28/11 12:53		251657	
Acetone	200000	U	200000	9800	10000	NA	6/28/11 12:53		251657	
Benzene	50000	U	50000	2100	10000	NA	6/28/11 12:53		251657	
Bromodichloromethane	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Bromoform	50000	U	50000	2700	10000	NA	6/28/11 12:53		251657	
Bromomethane	50000	U	50000	3100	10000	NA	6/28/11 12:53		251657	
Carbon Disulfide	100000	U	100000	2000	10000	NA	6/28/11 12:53		251657	
Carbon Tetrachloride	50000	U	50000	2700	10000	NA	6/28/11 12:53		251657	
Chlorobenzene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Chloroethane	50000	U	50000	3100	10000	NA	6/28/11 12:53		251657	
Chloroform	50000	U	50000	2200	10000	NA	6/28/11 12:53		251657	
Chloromethane	50000	U	50000	2400	10000	NA	6/28/11 12:53		251657	
Cyclohexane	100000	U	100000	2400	10000	NA	6/28/11 12:53		251657	
Dibromochloromethane	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Dichlorodifluoromethane (CFC 12)	50000	U	50000	5700	10000	NA	6/28/11 12:53		251657	
Dichloromethane	50000	U	50000	2200	10000	NA	6/28/11 12:53		251657	
Ethylbenzene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Isopropylbenzene (Cumene)	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Methyl Acetate	100000	U	100000	2300	10000	NA	6/28/11 12:53		251657	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 1127
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH17-20110621-1127	**Units:**	µg/L
Lab Code:	R1103564-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Methylcyclohexane	100000	U	100000	2500	10000	NA	6/28/11 12:53		251657	
Styrene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Tetrachloroethene (PCE)	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Toluene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Trichloroethene (TCE)	50000	U	50000	2300	10000	NA	6/28/11 12:53		251657	
Trichlorofluoromethane (CFC 11)	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
Vinyl Chloride	50000	U	50000	2300	10000	NA	6/28/11 12:53		251657	
cis-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
cis-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
m,p-Xylenes	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
n-Butyl Acetate	**1900000**	D	100000	4200	20000	NA	6/28/11 13:23		251657	
o-Xylene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
trans-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	
trans-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	6/28/11 12:53		251657	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/28/11 12:53	
Dibromofluoromethane	107	89-119	6/28/11 12:53	
Toluene-d8	107	87-121	6/28/11 12:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 1725
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH26-20110621-1725		
Lab Code:	R1103564-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**109**		mg/L	3.0	30	NA	6/27/11 17:12	
Iodide	300.0	**150**		mg/L	20	100	NA	7/12/11 14:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 1725
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH26-20110621-1725	**Units:**	µg/L
Lab Code:	R1103564-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100000	U	100000	4600	20000	NA	6/27/11 17:54		251477	
1,1,2,2-Tetrachloroethane	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
1,1,2-Trichloroethane	100000	U	100000	4600	20000	NA	6/27/11 17:54		251477	
1,1,2-Trichloro-1,2,2-trifluoroethane	100000	U	100000	6200	20000	NA	6/27/11 17:54		251477	
1,1-Dichloroethane (1,1-DCA)	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
1,1-Dichloroethene (1,1-DCE)	100000	U	100000	5800	20000	NA	6/27/11 17:54		251477	
1,2,4-Trichlorobenzene	100000	U	100000	5200	20000	NA	6/27/11 17:54		251477	
1,2-Dibromo-3-chloropropane (DBCP)	100000	U	100000	7600	20000	NA	6/27/11 17:54		251477	
1,2-Dibromoethane	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
1,2-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
1,2-Dichloroethane	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
1,2-Dichloropropane	100000	U	100000	5700	20000	NA	6/27/11 17:54		251477	
1,3-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
1,4-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
n-Butanol	1000000	U	1000000	210000	20000	NA	6/27/11 17:54		251477	
2-Butanone (MEK)	200000	U	200000	11000	20000	NA	6/27/11 17:54		251477	
2-Hexanone	200000	U	200000	7000	20000	NA	6/27/11 17:54		251477	
4-Methyl-2-pentanone	200000	U	200000	5400	20000	NA	6/27/11 17:54		251477	
Acetone	400000	U	400000	20000	20000	NA	6/27/11 17:54		251477	
Benzene	100000	U	100000	4200	20000	NA	6/27/11 17:54		251477	
Bromodichloromethane	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Bromoform	100000	U	100000	5400	20000	NA	6/27/11 17:54		251477	
Bromomethane	100000	U	100000	6200	20000	NA	6/27/11 17:54		251477	
Carbon Disulfide	200000	U	200000	4000	20000	NA	6/27/11 17:54		251477	
Carbon Tetrachloride	100000	U	100000	5400	20000	NA	6/27/11 17:54		251477	
Chlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Chloroethane	100000	U	100000	6200	20000	NA	6/27/11 17:54		251477	
Chloroform	100000	U	100000	4400	20000	NA	6/27/11 17:54		251477	
Chloromethane	100000	U	100000	4800	20000	NA	6/27/11 17:54		251477	
Cyclohexane	200000	U	200000	4800	20000	NA	6/27/11 17:54		251477	
Dibromochloromethane	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Dichlorodifluoromethane (CFC 12)	100000	U	100000	12000	20000	NA	6/27/11 17:54		251477	
Dichloromethane	100000	U	100000	4400	20000	NA	6/27/11 17:54		251477	
Ethylbenzene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Isopropylbenzene (Cumene)	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Methyl Acetate	200000	U	200000	4600	20000	NA	6/27/11 17:54		251477	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/21/11 1725
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH26-20110621-1725	**Units:**	µg/L
Lab Code:	R1103564-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Methylcyclohexane	200000	U	200000	5000	20000	NA	6/27/11 17:54		251477	
Styrene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Tetrachloroethene (PCE)	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Toluene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Trichloroethene (TCE)	100000	U	100000	4600	20000	NA	6/27/11 17:54		251477	
Trichlorofluoromethane (CFC 11)	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
Vinyl Chloride	100000	U	100000	4600	20000	NA	6/27/11 17:54		251477	
cis-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
cis-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
m,p-Xylenes	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
n-Butyl Acetate	**2200000**		100000	4200	20000	NA	6/27/11 17:54		251477	
o-Xylene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
trans-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	
trans-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/27/11 17:54		251477	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/27/11 17:54	
Dibromofluoromethane	106	89-119	6/27/11 17:54	
Toluene-d8	106	87-121	6/27/11 17:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 0745
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH29-20110622-0745		
Lab Code:	R1103564-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**70.9**		mg/L	2.0	20	NA	6/27/11 17:26	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 0745
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH29-20110622-0745	**Units:**	µg/L
Lab Code:	R1103564-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analysis Lot: 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100000	U	100000	4600	20000	NA	6/27/11 18:24		251477	
1,1,2,2-Tetrachloroethane	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
1,1,2-Trichloroethane	100000	U	100000	4600	20000	NA	6/27/11 18:24		251477	
1,1,2-Trichloro-1,2,2-trifluoroethane	100000	U	100000	6200	20000	NA	6/27/11 18:24		251477	
1,1-Dichloroethane (1,1-DCA)	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
1,1-Dichloroethene (1,1-DCE)	100000	U	100000	5800	20000	NA	6/27/11 18:24		251477	
1,2,4-Trichlorobenzene	100000	U	100000	5200	20000	NA	6/27/11 18:24		251477	
1,2-Dibromo-3-chloropropane (DBCP)	100000	U	100000	7600	20000	NA	6/27/11 18:24		251477	
1,2-Dibromoethane	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
1,2-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
1,2-Dichloroethane	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
1,2-Dichloropropane	100000	U	100000	5700	20000	NA	6/27/11 18:24		251477	
1,3-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
1,4-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
n-Butanol	1000000	U	1000000	210000	20000	NA	6/27/11 18:24		251477	
2-Butanone (MEK)	200000	U	200000	11000	20000	NA	6/27/11 18:24		251477	
2-Hexanone	200000	U	200000	7000	20000	NA	6/27/11 18:24		251477	
4-Methyl-2-pentanone	200000	U	200000	5400	20000	NA	6/27/11 18:24		251477	
Acetone	400000	U	400000	20000	20000	NA	6/27/11 18:24		251477	
Benzene	100000	U	100000	4200	20000	NA	6/27/11 18:24		251477	
Bromodichloromethane	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Bromoform	100000	U	100000	5400	20000	NA	6/27/11 18:24		251477	
Bromomethane	100000	U	100000	6200	20000	NA	6/27/11 18:24		251477	
Carbon Disulfide	200000	U	200000	4000	20000	NA	6/27/11 18:24		251477	
Carbon Tetrachloride	100000	U	100000	5400	20000	NA	6/27/11 18:24		251477	
Chlorobenzene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Chloroethane	100000	U	100000	6200	20000	NA	6/27/11 18:24		251477	
Chloroform	100000	U	100000	4400	20000	NA	6/27/11 18:24		251477	
Chloromethane	100000	U	100000	4800	20000	NA	6/27/11 18:24		251477	
Cyclohexane	200000	U	200000	4800	20000	NA	6/27/11 18:24		251477	
Dibromochloromethane	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Dichlorodifluoromethane (CFC 12)	100000	U	100000	12000	20000	NA	6/27/11 18:24		251477	
Dichloromethane	100000	U	100000	4400	20000	NA	6/27/11 18:24		251477	
Ethylbenzene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Isopropylbenzene (Cumene)	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Methyl Acetate	200000	U	200000	4600	20000	NA	6/27/11 18:24		251477	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 0745
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH29-20110622-0745	**Units:**	µg/L
Lab Code:	R1103564-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Methylcyclohexane	200000	U	200000	5000	20000	NA	6/27/11 18:24		251477	
Styrene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Tetrachloroethene (PCE)	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Toluene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Trichloroethene (TCE)	100000	U	100000	4600	20000	NA	6/27/11 18:24		251477	
Trichlorofluoromethane (CFC 11)	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
Vinyl Chloride	100000	U	100000	4600	20000	NA	6/27/11 18:24		251477	
cis-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
cis-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
m,p-Xylenes	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
n-Butyl Acetate	**2500000**		100000	4200	20000	NA	6/27/11 18:24		251477	
o-Xylene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
trans-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	
trans-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/27/11 18:24		251477	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/27/11 18:24	
Dibromofluoromethane	105	89-119	6/27/11 18:24	
Toluene-d8	106	87-121	6/27/11 18:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1150
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH39-20110622-1150		
Lab Code:	R1103564-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**88.1**		mg/L	3.0	30	NA	6/27/11 18:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1150
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH39-20110622-1150	**Units:**	µg/L
Lab Code:	R1103564-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250000	U	250000	12000	50000	NA	6/28/11 13:53		251657	
1,1,2,2-Tetrachloroethane	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
1,1,2-Trichloroethane	250000	U	250000	12000	50000	NA	6/28/11 13:53		251657	
1,1,2-Trichloro-1,2,2-trifluoroethane	250000	U	250000	16000	50000	NA	6/28/11 13:53		251657	
1,1-Dichloroethane (1,1-DCA)	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
1,1-Dichloroethene (1,1-DCE)	250000	U	250000	15000	50000	NA	6/28/11 13:53		251657	
1,2,4-Trichlorobenzene	**20000**	BJ	250000	13000	50000	NA	6/28/11 13:53		251657	
1,2-Dibromo-3-chloropropane (DBCP)	250000	U	250000	19000	50000	NA	6/28/11 13:53		251657	
1,2-Dibromoethane	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
1,2-Dichlorobenzene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
1,2-Dichloroethane	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
1,2-Dichloropropane	250000	U	250000	15000	50000	NA	6/28/11 13:53		251657	
1,3-Dichlorobenzene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
1,4-Dichlorobenzene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
n-Butanol	2500000	U	2500000	530000	50000	NA	6/28/11 13:53		251657	
2-Butanone (MEK)	500000	U	500000	26000	50000	NA	6/28/11 13:53		251657	
2-Hexanone	500000	U	500000	18000	50000	NA	6/28/11 13:53		251657	
4-Methyl-2-pentanone	500000	U	500000	14000	50000	NA	6/28/11 13:53		251657	
Acetone	1000000	U	1000000	49000	50000	NA	6/28/11 13:53		251657	
Benzene	250000	U	250000	11000	50000	NA	6/28/11 13:53		251657	
Bromodichloromethane	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Bromoform	250000	U	250000	14000	50000	NA	6/28/11 13:53		251657	
Bromomethane	250000	U	250000	16000	50000	NA	6/28/11 13:53		251657	
Carbon Disulfide	500000	U	500000	10000	50000	NA	6/28/11 13:53		251657	
Carbon Tetrachloride	250000	U	250000	14000	50000	NA	6/28/11 13:53		251657	
Chlorobenzene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Chloroethane	250000	U	250000	16000	50000	NA	6/28/11 13:53		251657	
Chloroform	250000	U	250000	11000	50000	NA	6/28/11 13:53		251657	
Chloromethane	250000	U	250000	12000	50000	NA	6/28/11 13:53		251657	
Cyclohexane	500000	U	500000	12000	50000	NA	6/28/11 13:53		251657	
Dibromochloromethane	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Dichlorodifluoromethane (CFC 12)	250000	U	250000	29000	50000	NA	6/28/11 13:53		251657	
Dichloromethane	250000	U	250000	11000	50000	NA	6/28/11 13:53		251657	
Ethylbenzene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Isopropylbenzene (Cumene)	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Methyl Acetate	500000	U	500000	12000	50000	NA	6/28/11 13:53		251657	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1150
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH39-20110622-1150	**Units:**	µg/L
Lab Code:	R1103564-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Methylcyclohexane	500000	U	500000	13000	50000	NA	6/28/11 13:53		251657	
Styrene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Tetrachloroethene (PCE)	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Toluene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Trichloroethene (TCE)	250000	U	250000	12000	50000	NA	6/28/11 13:53		251657	
Trichlorofluoromethane (CFC 11)	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
Vinyl Chloride	250000	U	250000	12000	50000	NA	6/28/11 13:53		251657	
cis-1,2-Dichloroethene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
cis-1,3-Dichloropropene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
m,p-Xylenes	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
n-Butyl Acetate	**7700000**		250000	11000	50000	NA	6/28/11 13:53		251657	
o-Xylene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
trans-1,2-Dichloroethene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	
trans-1,3-Dichloropropene	250000	U	250000	10000	50000	NA	6/28/11 13:53		251657	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/28/11 13:53	
Dibromofluoromethane	107	89-119	6/28/11 13:53	
Toluene-d8	109	87-121	6/28/11 13:53	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1458
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH40-20110622-1458		
Lab Code:	R1103564-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**86.4**		mg/L	3.0	30	NA	6/27/11 18:37	
Iodide	300.0	**115**		mg/L	20	100	NA	7/12/11 15:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1458
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH40-20110622-1458	**Units:**	µg/L
Lab Code:	R1103564-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130000	U	130000	5800	25000	NA	6/28/11 14:23		251657	
1,1,2,2-Tetrachloroethane	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
1,1,2-Trichloroethane	130000	U	130000	5800	25000	NA	6/28/11 14:23		251657	
1,1,2-Trichloro-1,2,2-trifluoroethane	130000	U	130000	7800	25000	NA	6/28/11 14:23		251657	
1,1-Dichloroethane (1,1-DCA)	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
1,1-Dichloroethene (1,1-DCE)	130000	U	130000	7300	25000	NA	6/28/11 14:23		251657	
1,2,4-Trichlorobenzene	130000	U	130000	6500	25000	NA	6/28/11 14:23		251657	
1,2-Dibromo-3-chloropropane (DBCP)	130000	U	130000	9500	25000	NA	6/28/11 14:23		251657	
1,2-Dibromoethane	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
1,2-Dichlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
1,2-Dichloroethane	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
1,2-Dichloropropane	130000	U	130000	7100	25000	NA	6/28/11 14:23		251657	
1,3-Dichlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
1,4-Dichlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
n-Butanol	1300000	U	1300000	270000	25000	NA	6/28/11 14:23		251657	
2-Butanone (MEK)	250000	U	250000	13000	25000	NA	6/28/11 14:23		251657	
2-Hexanone	250000	U	250000	8800	25000	NA	6/28/11 14:23		251657	
4-Methyl-2-pentanone	250000	U	250000	6800	25000	NA	6/28/11 14:23		251657	
Acetone	500000	U	500000	25000	25000	NA	6/28/11 14:23		251657	
Benzene	130000	U	130000	5300	25000	NA	6/28/11 14:23		251657	
Bromodichloromethane	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Bromoform	130000	U	130000	6800	25000	NA	6/28/11 14:23		251657	
Bromomethane	130000	U	130000	7800	25000	NA	6/28/11 14:23		251657	
Carbon Disulfide	250000	U	250000	5000	25000	NA	6/28/11 14:23		251657	
Carbon Tetrachloride	130000	U	130000	6800	25000	NA	6/28/11 14:23		251657	
Chlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Chloroethane	130000	U	130000	7800	25000	NA	6/28/11 14:23		251657	
Chloroform	130000	U	130000	5500	25000	NA	6/28/11 14:23		251657	
Chloromethane	130000	U	130000	6000	25000	NA	6/28/11 14:23		251657	
Cyclohexane	250000	U	250000	6000	25000	NA	6/28/11 14:23		251657	
Dibromochloromethane	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Dichlorodifluoromethane (CFC 12)	130000	U	130000	15000	25000	NA	6/28/11 14:23		251657	
Dichloromethane	130000	U	130000	5500	25000	NA	6/28/11 14:23		251657	
Ethylbenzene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Isopropylbenzene (Cumene)	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Methyl Acetate	250000	U	250000	5800	25000	NA	6/28/11 14:23		251657	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1458
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH40-20110622-1458	**Units:**	µg/L
Lab Code:	R1103564-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Methylcyclohexane	250000	U	250000	6300	25000	NA	6/28/11 14:23		251657	
Styrene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Tetrachloroethene (PCE)	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Toluene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Trichloroethene (TCE)	130000	U	130000	5800	25000	NA	6/28/11 14:23		251657	
Trichlorofluoromethane (CFC 11)	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
Vinyl Chloride	130000	U	130000	5800	25000	NA	6/28/11 14:23		251657	
cis-1,2-Dichloroethene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
cis-1,3-Dichloropropene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
m,p-Xylenes	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
n-Butyl Acetate	**4700000**		130000	5300	25000	NA	6/28/11 14:23		251657	
o-Xylene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
trans-1,2-Dichloroethene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	
trans-1,3-Dichloropropene	130000	U	130000	5000	25000	NA	6/28/11 14:23		251657	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/28/11 14:23	
Dibromofluoromethane	106	89-119	6/28/11 14:23	
Toluene-d8	107	87-121	6/28/11 14:23	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1655
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH49-20110622-1655		
Lab Code:	R1103564-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**72.4**		mg/L	3.0	30	NA	6/27/11 19:34	
Iodide	300.0	**146**		mg/L	20	100	NA	7/12/11 15:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1655
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH49-20110622-1655	**Units:**	µg/L
Lab Code:	R1103564-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250000	U	250000	12000	50000	NA	6/27/11 19:54		251477	
1,1,2,2-Tetrachloroethane	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
1,1,2-Trichloroethane	250000	U	250000	12000	50000	NA	6/27/11 19:54		251477	
1,1,2-Trichloro-1,2,2-trifluoroethane	250000	U	250000	16000	50000	NA	6/27/11 19:54		251477	
1,1-Dichloroethane (1,1-DCA)	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
1,1-Dichloroethene (1,1-DCE)	250000	U	250000	15000	50000	NA	6/27/11 19:54		251477	
1,2,4-Trichlorobenzene	250000	U	250000	13000	50000	NA	6/27/11 19:54		251477	
1,2-Dibromo-3-chloropropane (DBCP)	250000	U	250000	19000	50000	NA	6/27/11 19:54		251477	
1,2-Dibromoethane	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
1,2-Dichlorobenzene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
1,2-Dichloroethane	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
1,2-Dichloropropane	250000	U	250000	15000	50000	NA	6/27/11 19:54		251477	
1,3-Dichlorobenzene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
1,4-Dichlorobenzene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
n-Butanol	2500000	U	2500000	530000	50000	NA	6/27/11 19:54		251477	
2-Butanone (MEK)	500000	U	500000	26000	50000	NA	6/27/11 19:54		251477	
2-Hexanone	500000	U	500000	18000	50000	NA	6/27/11 19:54		251477	
4-Methyl-2-pentanone	500000	U	500000	14000	50000	NA	6/27/11 19:54		251477	
Acetone	1000000	U	1000000	49000	50000	NA	6/27/11 19:54		251477	
Benzene	250000	U	250000	11000	50000	NA	6/27/11 19:54		251477	
Bromodichloromethane	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Bromoform	250000	U	250000	14000	50000	NA	6/27/11 19:54		251477	
Bromomethane	250000	U	250000	16000	50000	NA	6/27/11 19:54		251477	
Carbon Disulfide	500000	U	500000	10000	50000	NA	6/27/11 19:54		251477	
Carbon Tetrachloride	250000	U	250000	14000	50000	NA	6/27/11 19:54		251477	
Chlorobenzene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Chloroethane	250000	U	250000	16000	50000	NA	6/27/11 19:54		251477	
Chloroform	250000	U	250000	11000	50000	NA	6/27/11 19:54		251477	
Chloromethane	250000	U	250000	12000	50000	NA	6/27/11 19:54		251477	
Cyclohexane	500000	U	500000	12000	50000	NA	6/27/11 19:54		251477	
Dibromochloromethane	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Dichlorodifluoromethane (CFC 12)	250000	U	250000	29000	50000	NA	6/27/11 19:54		251477	
Dichloromethane	250000	U	250000	11000	50000	NA	6/27/11 19:54		251477	
Ethylbenzene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Isopropylbenzene (Cumene)	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Methyl Acetate	500000	U	500000	12000	50000	NA	6/27/11 19:54		251477	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	6/22/11 1655
Sample Matrix:	Water	**Date Received:**	6/24/11
Sample Name:	BATCH49-20110622-1655	**Units:**	µg/L
Lab Code:	R1103564-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Methylcyclohexane	500000	U	500000	13000	50000	NA	6/27/11 19:54		251477	
Styrene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Tetrachloroethene (PCE)	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Toluene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Trichloroethene (TCE)	250000	U	250000	12000	50000	NA	6/27/11 19:54		251477	
Trichlorofluoromethane (CFC 11)	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
Vinyl Chloride	250000	U	250000	12000	50000	NA	6/27/11 19:54		251477	
cis-1,2-Dichloroethene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
cis-1,3-Dichloropropene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
m,p-Xylenes	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
n-Butyl Acetate	**6600000**		250000	11000	50000	NA	6/27/11 19:54		251477	
o-Xylene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
trans-1,2-Dichloroethene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	
trans-1,3-Dichloropropene	250000	U	250000	10000	50000	NA	6/27/11 19:54		251477	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/27/11 19:54	
Dibromofluoromethane	105	89-119	6/27/11 19:54	
Toluene-d8	109	87-121	6/27/11 19:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103564-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	6/27/11 12:13	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/12/11 13:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103564-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	6/27/11 17:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106213-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	6/27/11 15:23		251477	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	6/27/11 15:23		251477	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	6/27/11 15:23		251477	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	6/27/11 15:23		251477	
1,2,4-Trichlorobenzene	**0.37**	J	5.0	0.26	1	NA	6/27/11 15:23		251477	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	6/27/11 15:23		251477	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	6/27/11 15:23		251477	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
n-Butanol	50	U	50	11	1	NA	6/27/11 15:23		251477	
2-Butanone (MEK)	10	U	10	0.51	1	NA	6/27/11 15:23		251477	
2-Hexanone	10	U	10	0.35	1	NA	6/27/11 15:23		251477	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	6/27/11 15:23		251477	
Acetone	20	U	20	0.98	1	NA	6/27/11 15:23		251477	
Benzene	5.0	U	5.0	0.21	1	NA	6/27/11 15:23		251477	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Bromoform	5.0	U	5.0	0.27	1	NA	6/27/11 15:23		251477	
Bromomethane	5.0	U	5.0	0.31	1	NA	6/27/11 15:23		251477	
Carbon Disulfide	10	U	10	0.20	1	NA	6/27/11 15:23		251477	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	6/27/11 15:23		251477	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Chloroethane	5.0	U	5.0	0.31	1	NA	6/27/11 15:23		251477	
Chloroform	5.0	U	5.0	0.22	1	NA	6/27/11 15:23		251477	
Chloromethane	5.0	U	5.0	0.24	1	NA	6/27/11 15:23		251477	
Cyclohexane	10	U	10	0.24	1	NA	6/27/11 15:23		251477	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	6/27/11 15:23		251477	
Dichloromethane	5.0	U	5.0	0.22	1	NA	6/27/11 15:23		251477	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Methyl Acetate	10	U	10	0.23	1	NA	6/27/11 15:23		251477	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106213-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251477

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Methylcyclohexane	10	U	10	0.25	1	NA	6/27/11 15:23		251477	
Styrene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Toluene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	6/27/11 15:23		251477	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	6/27/11 15:23		251477	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	6/27/11 15:23		251477	
o-Xylene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/27/11 15:23		251477	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/27/11 15:23	
Dibromofluoromethane	107	89-119	6/27/11 15:23	
Toluene-d8	107	87-121	6/27/11 15:23	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106262-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	6/28/11 12:22		251657	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	6/28/11 12:22		251657	
1,2,4-Trichlorobenzene	**0.36**	J	5.0	0.26	1	NA	6/28/11 12:22		251657	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	6/28/11 12:22		251657	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	6/28/11 12:22		251657	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
n-Butanol	50	U	50	11	1	NA	6/28/11 12:22		251657	
2-Butanone (MEK)	10	U	10	0.51	1	NA	6/28/11 12:22		251657	
2-Hexanone	10	U	10	0.35	1	NA	6/28/11 12:22		251657	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	6/28/11 12:22		251657	
Acetone	20	U	20	0.98	1	NA	6/28/11 12:22		251657	
Benzene	5.0	U	5.0	0.21	1	NA	6/28/11 12:22		251657	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Bromoform	5.0	U	5.0	0.27	1	NA	6/28/11 12:22		251657	
Bromomethane	5.0	U	5.0	0.31	1	NA	6/28/11 12:22		251657	
Carbon Disulfide	10	U	10	0.20	1	NA	6/28/11 12:22		251657	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	6/28/11 12:22		251657	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Chloroethane	5.0	U	5.0	0.31	1	NA	6/28/11 12:22		251657	
Chloroform	**0.52**	J	5.0	0.22	1	NA	6/28/11 12:22		251657	
Chloromethane	5.0	U	5.0	0.24	1	NA	6/28/11 12:22		251657	
Cyclohexane	10	U	10	0.24	1	NA	6/28/11 12:22		251657	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	6/28/11 12:22		251657	
Dichloromethane	5.0	U	5.0	0.22	1	NA	6/28/11 12:22		251657	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Methyl Acetate	10	U	10	0.23	1	NA	6/28/11 12:22		251657	

Client:	GeoSyntec Consultants	**Service Request:**	R1103564
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106262-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Methylcyclohexane	10	U	10	0.25	1	NA	6/28/11 12:22		251657	
Styrene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Toluene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	6/28/11 12:22		251657	
o-Xylene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/28/11 12:22	
Dibromofluoromethane	107	89-119	6/28/11 12:22	
Toluene-d8	108	87-121	6/28/11 12:22	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103564
Date Analyzed: 6/27/11 - 7/12/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103564-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.01	1.00	101	90 - 110
Iodide	300.0	0.958	1.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103564
Date Analyzed: 6/27/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103564-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.03	1.00	103	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103564
Date Analyzed: 6/27/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251477

Analyte Name	Lab Control Sample RQ1106213-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.4	20.0	92	72 - 128
1,1,2,2-Tetrachloroethane	19.8	20.0	99	72 - 131
1,1,2-Trichloroethane	21.0	20.0	105	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.0	20.0	95	71 - 134
1,1-Dichloroethane (1,1-DCA)	20.2	20.0	101	76 - 122
1,1-Dichloroethene (1,1-DCE)	18.1	20.0	90	72 - 129
1,2,4-Trichlorobenzene	22.2	20.0	111	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.5	20.0	108	62 - 131
1,2-Dibromoethane	19.7	20.0	98	78 - 125
1,2-Dichlorobenzene	20.6	20.0	103	79 - 124
1,2-Dichloroethane	19.5	20.0	98	78 - 126
1,2-Dichloropropane	20.2	20.0	101	80 - 123
1,3-Dichlorobenzene	20.8	20.0	104	78 - 124
1,4-Dichlorobenzene	20.0	20.0	100	78 - 123
n-Butanol	1080	1000	108	70 - 130
2-Butanone (MEK)	22.2	20.0	111	60 - 133
2-Hexanone	20.0	20.0	100	61 - 131
4-Methyl-2-pentanone	20.6	20.0	103	61 - 132
Acetone	21.5	20.0	107	59 - 140
Benzene	20.0	20.0	100	78 - 121
Bromodichloromethane	20.9	20.0	104	80 - 125
Bromoform	21.3	20.0	107	73 - 132
Bromomethane	18.1	20.0	91	57 - 144
Carbon Disulfide	17.1	20.0	86	59 - 138
Carbon Tetrachloride	18.9	20.0	95	69 - 135
Chlorobenzene	20.8	20.0	104	80 - 121
Chloroethane	19.3	20.0	97	71 - 130
Chloroform	19.1	20.0	95	78 - 125
Chloromethane	20.1	20.0	101	62 - 133
Cyclohexane	16.3	20.0	82	67 - 127
Dibromochloromethane	20.7	20.0	104	78 - 133
Dichlorodifluoromethane (CFC 12)	21.8	20.0	109	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103564
Date Analyzed: 6/27/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251477

Analyte Name	Lab Control Sample RQ1106213-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.7	20.0	94	75 - 125
Ethylbenzene	19.7	20.0	98	78 - 123
Isopropylbenzene (Cumene)	22.9	20.0	115	73 - 133
Methyl Acetate	18.8	20.0	94	57 - 157
Methyl tert-Butyl Ether	19.6	20.0	98	75 - 126
Methylcyclohexane	16.5	20.0	83	64 - 133
Styrene	21.2	20.0	106	80 - 132
Tetrachloroethene (PCE)	20.2	20.0	101	72 - 131
Toluene	20.4	20.0	102	78 - 122
Trichloroethene (TCE)	20.2	20.0	101	74 - 127
Trichlorofluoromethane (CFC 11)	19.1	20.0	96	71 - 139
Vinyl Chloride	19.6	20.0	98	71 - 136
cis-1,2-Dichloroethene	20.0	20.0	100	78 - 122
cis-1,3-Dichloropropene	20.3	20.0	101	77 - 125
m,p-Xylenes	41.4	40.0	104	79 - 126
n-Butyl Acetate	19.8	20.0	99	54 - 127
o-Xylene	20.1	20.0	100	79 - 126
trans-1,2-Dichloroethene	19.0	20.0	95	75 - 121
trans-1,3-Dichloropropene	20.0	20.0	100	69 - 127

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103564
Date Analyzed: 6/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251657

Analyte Name	Lab Control Sample RQ1106262-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.5	20.0	82	72 - 128
1,1,2,2-Tetrachloroethane	20.5	20.0	103	72 - 131
1,1,2-Trichloroethane	21.0	20.0	105	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.6	20.0	83	71 - 134
1,1-Dichloroethane (1,1-DCA)	19.7	20.0	99	76 - 122
1,1-Dichloroethene (1,1-DCE)	16.7	20.0	84	72 - 129
1,2,4-Trichlorobenzene	21.0	20.0	105	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	20.7	20.0	103	62 - 131
1,2-Dibromoethane	20.6	20.0	103	78 - 125
1,2-Dichlorobenzene	20.7	20.0	103	79 - 124
1,2-Dichloroethane	20.0	20.0	100	78 - 126
1,2-Dichloropropane	19.3	20.0	97	80 - 123
1,3-Dichlorobenzene	20.6	20.0	103	78 - 124
1,4-Dichlorobenzene	19.9	20.0	99	78 - 123
n-Butanol	1080	1000	108	70 - 130
2-Butanone (MEK)	20.7	20.0	104	60 - 133
2-Hexanone	20.2	20.0	101	61 - 131
4-Methyl-2-pentanone	20.6	20.0	103	61 - 132
Acetone	21.0	20.0	105	59 - 140
Benzene	19.2	20.0	96	78 - 121
Bromodichloromethane	20.6	20.0	103	80 - 125
Bromoform	22.7	20.0	114	73 - 132
Bromomethane	17.0	20.0	85	57 - 144
Carbon Disulfide	15.8	20.0	79	59 - 138
Carbon Tetrachloride	17.1	20.0	85	69 - 135
Chlorobenzene	20.0	20.0	100	80 - 121
Chloroethane	18.8	20.0	94	71 - 130
Chloroform	18.5	20.0	92	78 - 125
Chloromethane	19.1	20.0	95	62 - 133
Cyclohexane	17.3	20.0	86	67 - 127
Dibromochloromethane	22.0	20.0	110	78 - 133
Dichlorodifluoromethane (CFC 12)	19.3	20.0	96	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103564
Date Analyzed: 6/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251657

Analyte Name	Lab Control Sample RQ1106262-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.7	20.0	98	75 - 125
Ethylbenzene	18.0	20.0	90	78 - 123
Isopropylbenzene (Cumene)	21.4	20.0	107	73 - 133
Methyl Acetate	19.1	20.0	95	57 - 157
Methyl tert-Butyl Ether	20.2	20.0	101	75 - 126
Methylcyclohexane	17.4	20.0	87	64 - 133
Styrene	20.5	20.0	102	80 - 132
Tetrachloroethene (PCE)	18.3	20.0	92	72 - 131
Toluene	19.3	20.0	96	78 - 122
Trichloroethene (TCE)	18.6	20.0	93	74 - 127
Trichlorofluoromethane (CFC 11)	17.4	20.0	87	71 - 139
Vinyl Chloride	18.2	20.0	91	71 - 136
cis-1,2-Dichloroethene	19.2	20.0	96	78 - 122
cis-1,3-Dichloropropene	20.0	20.0	100	77 - 125
m,p-Xylenes	38.5	40.0	96	79 - 126
n-Butyl Acetate	20.3	20.0	102	54 - 127
o-Xylene	19.1	20.0	96	79 - 126
trans-1,2-Dichloroethene	18.1	20.0	90	75 - 121
trans-1,3-Dichloropropene	20.6	20.0	103	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services™ CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

1 Mustard Street, Suite 250, Rochester, NY 14609 | 585.288.5380 | 800.695.7222 | 585.288.8475 (fax) PAGE 1 OF 1

Project Name: LC34 PED	Project Number: TR0272
Project Manager: CORY REPTA	Report CC:
Company/Address: GEOSYNTEC (GUELPH)	
Phone #: 519-822-2230 ext 224	E-mail:
Sampler's Signature:	Sampler's Printed Name: JOSEPH BARTLETT

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 1E2, 1E3, 1E5

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 (4 BA)	BR	T	REMARKS/ ALTERNATE DESCRIPTION
BATCH10-20110621-0825	-001	6/21/11	0825	W	4	X	X		
BATCH17-20110621-1127	-002	6/21/11	1127	W	4	X	X	X	
BATCH26-20110621-1725	-003	6/21/11	1725	W	4	X	X	X	
BATCH29-20110622-0745	-004	6/22/11	0745	W	4	X	X		
BATCH39-20110622-1150	-005	6/22/11	1150	W	4	X	X		
BATCH40-20110622-1458	-006	6/22/11	1458	W	4	X	X	X	
BATCH49-20110622-1655	-007	6/22/11	1655	W	4	X	X	X	
TEST BLANK	HOLD #				3	X	X	X	

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other ICE

SPECIAL INSTRUCTIONS/COMMENTS
Metals

as per client email 6/24/11. KB 6/24/11

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
X Standard

REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with F

Edata X Yes ____ No

INVOICE INFORMATION
PO #:
BILL TO:

R1103564
GeoSyntec Consultants
LC34 PED

☐ See QAPP

STATE WHERE SAMPLES WERE COLLECTED: FL

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Janet Bartus	Signature: Jeremy LaFave	Signature:	Signature:	Signature:	Signature:
Printed Name: Janet Bartus	Printed Name: Jeremy LaFave	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: GeoSyntec Consultants	Firm: GS	Firm:	Firm:	Firm:	Firm:
Date/Time: 6/23/11 1500	Date/Time: 6/24/11 0920	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - Lab Copy; Yellow - Return To Originator

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R11-35164

Cooler received on 6/24/11 by: AP COURIER: CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were Ice or Ice packs present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC), CLIENT				
7.	Temperature of cooler(s) upon receipt:	3.8°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 6/24/11 0945

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 6/28/11

Cooler Breakdown: Date: 6/24/11 Time: 1125 by: AM

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	YES	(NO)	
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	N/A

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: O-319-005, 053011-2V

Other Comments:

* for Test Blanks - only vials for 8260 received no Br&I,

* for loc. BATCH 29-20110622.0745 bottle for Br&I labeled BATCH 26-20110622-0745

PC Secondary Review: KB 7/26/11

*significant air bubbles: VOA > 5-6 mm : WC > [illegible] diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

July 25, 2011 Service Request No: R1103580

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34 PED/TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on June 25, 2011. For your reference, these analyses have been assigned our service request number **R1103580**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1103580
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	6/25/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Three (3) water samples were collected by the client on 6/23/11 and were received for analysis at Columbia Analytical Services on 6/25/11 via a national courier. The "Test Blank" was placed on hold as per instructions in an email from the client on 6/24/11. The samples were received at a cooler temperature of 2.6°C within the guidelines of 0-6°C.

Volatile Organic Compounds

Three (3) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (RSK) recoveries were all within QC limits except for Isopropylbenzene which was outside limits high (134%, limit 133%) on the 6/29/11 analytical run. The recovery has been flagged as "*".

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

No samples required reanalysis for overrange compounds. The sample data is reported in a merged format to be consistent with other reports for this project.

All samples were analyzed within 7 days from collection, the holding time for unpreserved vials which were to be used for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

The Laboratory Method Blanks were free from contamination except for a 1,2,4-Trichlorobenzene hit in the 6/29/11 blank and 1,2,4-Trichlorobenzene and Chloroform hits in the 6/28/11 blank. No data required "B" flags however.

No other analytical or QC problems were encountered.

Inorganic Parameters

Three (3) water samples were analyzed for Bromide and one (1) sample was analyzed for Iodide by IC method 300.0.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

Approved by Kevin Burdick **Date** 7/26/11

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burnham **Date** 7/26/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1103580

Lab ID	Client ID
R1103580-001	BATCH54-20116923-0750
R1103580-002	BATCH57-20110623-1150
R1103580-003	BATCH67-20110623-1540

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 0750
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH54-20116923-0750		
Lab Code:	R1103580-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**64.8**		mg/L	3.0	30	NA	6/27/11 18:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 0750
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH54-20116923-0750	**Units:**	µg/L
Lab Code:	R1103580-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analysis Lot: 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130000	U	130000	5800	25000	NA	6/28/11 14:53		251657	
1,1,2,2-Tetrachloroethane	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
1,1,2-Trichloroethane	130000	U	130000	5800	25000	NA	6/28/11 14:53		251657	
1,1,2-Trichloro-1,2,2-trifluoroethane	130000	U	130000	7800	25000	NA	6/28/11 14:53		251657	
1,1-Dichloroethane (1,1-DCA)	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
1,1-Dichloroethene (1,1-DCE)	130000	U	130000	7300	25000	NA	6/28/11 14:53		251657	
1,2,4-Trichlorobenzene	130000	U	130000	6500	25000	NA	6/28/11 14:53		251657	
1,2-Dibromo-3-chloropropane (DBCP)	130000	U	130000	9500	25000	NA	6/28/11 14:53		251657	
1,2-Dibromoethane	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
1,2-Dichlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
1,2-Dichloroethane	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
1,2-Dichloropropane	130000	U	130000	7100	25000	NA	6/28/11 14:53		251657	
1,3-Dichlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
1,4-Dichlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
n-Butanol	1300000	U	1300000	270000	25000	NA	6/28/11 14:53		251657	
2-Butanone (MEK)	250000	U	250000	13000	25000	NA	6/28/11 14:53		251657	
2-Hexanone	250000	U	250000	8800	25000	NA	6/28/11 14:53		251657	
4-Methyl-2-pentanone	250000	U	250000	6800	25000	NA	6/28/11 14:53		251657	
Acetone	500000	U	500000	25000	25000	NA	6/28/11 14:53		251657	
Benzene	130000	U	130000	5300	25000	NA	6/28/11 14:53		251657	
Bromodichloromethane	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Bromoform	130000	U	130000	6800	25000	NA	6/28/11 14:53		251657	
Bromomethane	130000	U	130000	7800	25000	NA	6/28/11 14:53		251657	
Carbon Disulfide	250000	U	250000	5000	25000	NA	6/28/11 14:53		251657	
Carbon Tetrachloride	130000	U	130000	6800	25000	NA	6/28/11 14:53		251657	
Chlorobenzene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Chloroethane	130000	U	130000	7800	25000	NA	6/28/11 14:53		251657	
Chloroform	130000	U	130000	5500	25000	NA	6/28/11 14:53		251657	
Chloromethane	130000	U	130000	6000	25000	NA	6/28/11 14:53		251657	
Cyclohexane	250000	U	250000	6000	25000	NA	6/28/11 14:53		251657	
Dibromochloromethane	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Dichlorodifluoromethane (CFC 12)	130000	U	130000	15000	25000	NA	6/28/11 14:53		251657	
Dichloromethane	130000	U	130000	5500	25000	NA	6/28/11 14:53		251657	
Ethylbenzene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Isopropylbenzene (Cumene)	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Methyl Acetate	250000	U	250000	5800	25000	NA	6/28/11 14:53		251657	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 0750
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH54-20116923-0750	**Units:**	µg/L
Lab Code:	R1103580-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Methylcyclohexane	250000	U	250000	6300	25000	NA	6/28/11 14:53		251657	
Styrene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Tetrachloroethene (PCE)	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Toluene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Trichloroethene (TCE)	130000	U	130000	5800	25000	NA	6/28/11 14:53		251657	
Trichlorofluoromethane (CFC 11)	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
Vinyl Chloride	130000	U	130000	5800	25000	NA	6/28/11 14:53		251657	
cis-1,2-Dichloroethene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
cis-1,3-Dichloropropene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
m,p-Xylenes	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
n-Butyl Acetate	**3400000**		130000	5300	25000	NA	6/28/11 14:53		251657	
o-Xylene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
trans-1,2-Dichloroethene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	
trans-1,3-Dichloropropene	130000	U	130000	5000	25000	NA	6/28/11 14:53		251657	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/28/11 14:53	
Dibromofluoromethane	107	89-119	6/28/11 14:53	
Toluene-d8	107	87-121	6/28/11 14:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 1150
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH57-20110623-1150		
Lab Code:	R1103580-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**64.9**		mg/L	3.0	30	NA	6/27/11 19:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 1150
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH57-20110623-1150	**Units:**	µg/L
Lab Code:	R1103580-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100000	U	100000	4600	20000	NA	6/28/11 15:24		251657	
1,1,2,2-Tetrachloroethane	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
1,1,2-Trichloroethane	100000	U	100000	4600	20000	NA	6/28/11 15:24		251657	
1,1,2-Trichloro-1,2,2-trifluoroethane	100000	U	100000	6200	20000	NA	6/28/11 15:24		251657	
1,1-Dichloroethane (1,1-DCA)	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
1,1-Dichloroethene (1,1-DCE)	100000	U	100000	5800	20000	NA	6/28/11 15:24		251657	
1,2,4-Trichlorobenzene	100000	U	100000	5200	20000	NA	6/28/11 15:24		251657	
1,2-Dibromo-3-chloropropane (DBCP)	100000	U	100000	7600	20000	NA	6/28/11 15:24		251657	
1,2-Dibromoethane	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
1,2-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
1,2-Dichloroethane	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
1,2-Dichloropropane	100000	U	100000	5700	20000	NA	6/28/11 15:24		251657	
1,3-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
1,4-Dichlorobenzene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
n-Butanol	1000000	U	1000000	210000	20000	NA	6/28/11 15:24		251657	
2-Butanone (MEK)	200000	U	200000	11000	20000	NA	6/28/11 15:24		251657	
2-Hexanone	200000	U	200000	7000	20000	NA	6/28/11 15:24		251657	
4-Methyl-2-pentanone	200000	U	200000	5400	20000	NA	6/28/11 15:24		251657	
Acetone	400000	U	400000	20000	20000	NA	6/28/11 15:24		251657	
Benzene	100000	U	100000	4200	20000	NA	6/28/11 15:24		251657	
Bromodichloromethane	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Bromoform	100000	U	100000	5400	20000	NA	6/28/11 15:24		251657	
Bromomethane	100000	U	100000	6200	20000	NA	6/28/11 15:24		251657	
Carbon Disulfide	200000	U	200000	4000	20000	NA	6/28/11 15:24		251657	
Carbon Tetrachloride	100000	U	100000	5400	20000	NA	6/28/11 15:24		251657	
Chlorobenzene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Chloroethane	100000	U	100000	6200	20000	NA	6/28/11 15:24		251657	
Chloroform	100000	U	100000	4400	20000	NA	6/28/11 15:24		251657	
Chloromethane	100000	U	100000	4800	20000	NA	6/28/11 15:24		251657	
Cyclohexane	200000	U	200000	4800	20000	NA	6/28/11 15:24		251657	
Dibromochloromethane	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Dichlorodifluoromethane (CFC 12)	100000	U	100000	12000	20000	NA	6/28/11 15:24		251657	
Dichloromethane	100000	U	100000	4400	20000	NA	6/28/11 15:24		251657	
Ethylbenzene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Isopropylbenzene (Cumene)	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Methyl Acetate	200000	U	200000	4600	20000	NA	6/28/11 15:24		251657	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 1150
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH57-20110623-1150	**Units:**	µg/L
Lab Code:	R1103580-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Methylcyclohexane	200000	U	200000	5000	20000	NA	6/28/11 15:24		251657	
Styrene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Tetrachloroethene (PCE)	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Toluene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Trichloroethene (TCE)	100000	U	100000	4600	20000	NA	6/28/11 15:24		251657	
Trichlorofluoromethane (CFC 11)	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
Vinyl Chloride	100000	U	100000	4600	20000	NA	6/28/11 15:24		251657	
cis-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
cis-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
m,p-Xylenes	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
n-Butyl Acetate	**2400000**		100000	4200	20000	NA	6/28/11 15:24		251657	
o-Xylene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
trans-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	
trans-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	6/28/11 15:24		251657	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/28/11 15:24	
Dibromofluoromethane	106	89-119	6/28/11 15:24	
Toluene-d8	107	87-121	6/28/11 15:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 1540
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH67-20110623-1540		
Lab Code:	R1103580-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**70.7**		mg/L	3.0	30	NA	6/27/11 19:19	
Iodide	300.0	**102**		mg/L	20	100	NA	7/12/11 15:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 1540
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH67-20110623-1540	**Units:**	µg/L
Lab Code:	R1103580-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251815

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50000	U	50000	2300	10000	NA	6/29/11 13:39		251815	
1,1,2,2-Tetrachloroethane	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
1,1,2-Trichloroethane	50000	U	50000	2300	10000	NA	6/29/11 13:39		251815	
1,1,2-Trichloro-1,2,2-trifluoroethane	50000	U	50000	3100	10000	NA	6/29/11 13:39		251815	
1,1-Dichloroethane (1,1-DCA)	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
1,1-Dichloroethene (1,1-DCE)	50000	U	50000	2900	10000	NA	6/29/11 13:39		251815	
1,2,4-Trichlorobenzene	50000	U	50000	2600	10000	NA	6/29/11 13:39		251815	
1,2-Dibromo-3-chloropropane (DBCP)	50000	U	50000	3800	10000	NA	6/29/11 13:39		251815	
1,2-Dibromoethane	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
1,2-Dichlorobenzene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
1,2-Dichloroethane	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
1,2-Dichloropropane	50000	U	50000	2900	10000	NA	6/29/11 13:39		251815	
1,3-Dichlorobenzene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
1,4-Dichlorobenzene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
n-Butanol	500000	U	500000		10000	NA	6/29/11 13:39		251815	
2-Butanone (MEK)	100000	U	100000	5100	10000	NA	6/29/11 13:39		251815	
2-Hexanone	100000	U	100000	3500	10000	NA	6/29/11 13:39		251815	
4-Methyl-2-pentanone	100000	U	100000	2700	10000	NA	6/29/11 13:39		251815	
Acetone	200000	U	200000	9800	10000	NA	6/29/11 13:39		251815	
Benzene	50000	U	50000	2100	10000	NA	6/29/11 13:39		251815	
Bromodichloromethane	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Bromoform	50000	U	50000	2700	10000	NA	6/29/11 13:39		251815	
Bromomethane	50000	U	50000	3100	10000	NA	6/29/11 13:39		251815	
Carbon Disulfide	100000	U	100000	2000	10000	NA	6/29/11 13:39		251815	
Carbon Tetrachloride	50000	U	50000	2700	10000	NA	6/29/11 13:39		251815	
Chlorobenzene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Chloroethane	50000	U	50000	3100	10000	NA	6/29/11 13:39		251815	
Chloroform	50000	U	50000	2200	10000	NA	6/29/11 13:39		251815	
Chloromethane	50000	U	50000	2400	10000	NA	6/29/11 13:39		251815	
Cyclohexane	100000	U	100000	2400	10000	NA	6/29/11 13:39		251815	
Dibromochloromethane	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Dichlorodifluoromethane (CFC 12)	50000	U	50000	5700	10000	NA	6/29/11 13:39		251815	
Dichloromethane	50000	U	50000	2200	10000	NA	6/29/11 13:39		251815	
Ethylbenzene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Isopropylbenzene (Cumene)	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Methyl Acetate	100000	U	100000	2300	10000	NA	6/29/11 13:39		251815	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	6/23/11 1540
Sample Matrix:	Water	**Date Received:**	6/25/11
Sample Name:	BATCH67-20110623-1540	**Units:**	µg/L
Lab Code:	R1103580-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251815

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Methylcyclohexane	100000	U	100000	2500	10000	NA	6/29/11 13:39		251815	
Styrene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Tetrachloroethene (PCE)	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Toluene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Trichloroethene (TCE)	50000	U	50000	2300	10000	NA	6/29/11 13:39		251815	
Trichlorofluoromethane (CFC 11)	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
Vinyl Chloride	50000	U	50000	2300	10000	NA	6/29/11 13:39		251815	
cis-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
cis-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
m,p-Xylenes	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
n-Butyl Acetate	**1700000**		50000	2100	10000	NA	6/29/11 13:39		251815	
o-Xylene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
trans-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	
trans-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	6/29/11 13:39		251815	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/29/11 13:39	
Dibromofluoromethane	106	89-119	6/29/11 13:39	
Toluene-d8	107	87-121	6/29/11 13:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103580-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	6/27/11 17:54	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/12/11 13:28	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106262-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	6/28/11 12:22		251657	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	6/28/11 12:22		251657	
1,2,4-Trichlorobenzene	**0.36**	J	5.0	0.26	1	NA	6/28/11 12:22		251657	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	6/28/11 12:22		251657	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	6/28/11 12:22		251657	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
n-Butanol	50	U	50	11	1	NA	6/28/11 12:22		251657	
2-Butanone (MEK)	10	U	10	0.51	1	NA	6/28/11 12:22		251657	
2-Hexanone	10	U	10	0.35	1	NA	6/28/11 12:22		251657	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	6/28/11 12:22		251657	
Acetone	20	U	20	0.98	1	NA	6/28/11 12:22		251657	
Benzene	5.0	U	5.0	0.21	1	NA	6/28/11 12:22		251657	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Bromoform	5.0	U	5.0	0.27	1	NA	6/28/11 12:22		251657	
Bromomethane	5.0	U	5.0	0.31	1	NA	6/28/11 12:22		251657	
Carbon Disulfide	10	U	10	0.20	1	NA	6/28/11 12:22		251657	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	6/28/11 12:22		251657	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Chloroethane	5.0	U	5.0	0.31	1	NA	6/28/11 12:22		251657	
Chloroform	**0.52**	J	5.0	0.22	1	NA	6/28/11 12:22		251657	
Chloromethane	5.0	U	5.0	0.24	1	NA	6/28/11 12:22		251657	
Cyclohexane	10	U	10	0.24	1	NA	6/28/11 12:22		251657	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	6/28/11 12:22		251657	
Dichloromethane	5.0	U	5.0	0.22	1	NA	6/28/11 12:22		251657	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Methyl Acetate	10	U	10	0.23	1	NA	6/28/11 12:22		251657	

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106262-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251657

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Methylcyclohexane	10	U	10	0.25	1	NA	6/28/11 12:22		251657	
Styrene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Toluene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	6/28/11 12:22		251657	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	6/28/11 12:22		251657	
o-Xylene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/28/11 12:22		251657	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/28/11 12:22	
Dibromofluoromethane	107	89-119	6/28/11 12:22	
Toluene-d8	108	87-121	6/28/11 12:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106319-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251815

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	6/29/11 12:37		251815	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	6/29/11 12:37		251815	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	6/29/11 12:37		251815	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	6/29/11 12:37		251815	
1,2,4-Trichlorobenzene	**0.30**	J	5.0	0.26	1	NA	6/29/11 12:37		251815	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	6/29/11 12:37		251815	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	6/29/11 12:37		251815	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
n-Butanol	50	U	50	11	1	NA	6/29/11 12:37		251815	
2-Butanone (MEK)	10	U	10	0.51	1	NA	6/29/11 12:37		251815	
2-Hexanone	10	U	10	0.35	1	NA	6/29/11 12:37		251815	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	6/29/11 12:37		251815	
Acetone	20	U	20	0.98	1	NA	6/29/11 12:37		251815	
Benzene	5.0	U	5.0	0.21	1	NA	6/29/11 12:37		251815	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Bromoform	5.0	U	5.0	0.27	1	NA	6/29/11 12:37		251815	
Bromomethane	5.0	U	5.0	0.31	1	NA	6/29/11 12:37		251815	
Carbon Disulfide	10	U	10	0.20	1	NA	6/29/11 12:37		251815	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	6/29/11 12:37		251815	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Chloroethane	5.0	U	5.0	0.31	1	NA	6/29/11 12:37		251815	
Chloroform	5.0	U	5.0	0.22	1	NA	6/29/11 12:37		251815	
Chloromethane	5.0	U	5.0	0.24	1	NA	6/29/11 12:37		251815	
Cyclohexane	10	U	10	0.24	1	NA	6/29/11 12:37		251815	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	6/29/11 12:37		251815	
Dichloromethane	5.0	U	5.0	0.22	1	NA	6/29/11 12:37		251815	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Methyl Acetate	10	U	10	0.23	1	NA	6/29/11 12:37		251815	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103580
Project:	LC34 PED/TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106319-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 251815

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Methylcyclohexane	10	U	10	0.25	1	NA	6/29/11 12:37		251815	
Styrene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Toluene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	6/29/11 12:37		251815	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	6/29/11 12:37		251815	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	6/29/11 12:37		251815	
o-Xylene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/29/11 12:37		251815	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/29/11 12:37	
Dibromofluoromethane	106	89-119	6/29/11 12:37	
Toluene-d8	108	87-121	6/29/11 12:37	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103580
Date Analyzed: 6/27/11 - 7/12/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103580-LCS Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.03	1.00	103	90 - 110
Iodide	300.0	0.958	1.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103580
Date Analyzed: 6/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251657

Analyte Name	Lab Control Sample RQ1106262-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.5	20.0	82	72 - 128
1,1,2,2-Tetrachloroethane	20.5	20.0	103	72 - 131
1,1,2-Trichloroethane	21.0	20.0	105	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.6	20.0	83	71 - 134
1,1-Dichloroethane (1,1-DCA)	19.7	20.0	99	76 - 122
1,1-Dichloroethene (1,1-DCE)	16.7	20.0	84	72 - 129
1,2,4-Trichlorobenzene	21.0	20.0	105	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	20.7	20.0	103	62 - 131
1,2-Dibromoethane	20.6	20.0	103	78 - 125
1,2-Dichlorobenzene	20.7	20.0	103	79 - 124
1,2-Dichloroethane	20.0	20.0	100	78 - 126
1,2-Dichloropropane	19.3	20.0	97	80 - 123
1,3-Dichlorobenzene	20.6	20.0	103	78 - 124
1,4-Dichlorobenzene	19.9	20.0	99	78 - 123
n-Butanol	1080	1000	108	70 - 130
2-Butanone (MEK)	20.7	20.0	104	60 - 133
2-Hexanone	20.2	20.0	101	61 - 131
4-Methyl-2-pentanone	20.6	20.0	103	61 - 132
Acetone	21.0	20.0	105	59 - 140
Benzene	19.2	20.0	96	78 - 121
Bromodichloromethane	20.6	20.0	103	80 - 125
Bromoform	22.7	20.0	114	73 - 132
Bromomethane	17.0	20.0	85	57 - 144
Carbon Disulfide	15.8	20.0	79	59 - 138
Carbon Tetrachloride	17.1	20.0	85	69 - 135
Chlorobenzene	20.0	20.0	100	80 - 121
Chloroethane	18.8	20.0	94	71 - 130
Chloroform	18.5	20.0	92	78 - 125
Chloromethane	19.1	20.0	95	62 - 133
Cyclohexane	17.3	20.0	86	67 - 127
Dibromochloromethane	22.0	20.0	110	78 - 133
Dichlorodifluoromethane (CFC 12)	19.3	20.0	96	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103580
Date Analyzed: 6/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251657

Lab Control Sample
RQ1106262-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.7	20.0	98	75 - 125
Ethylbenzene	18.0	20.0	90	78 - 123
Isopropylbenzene (Cumene)	21.4	20.0	107	73 - 133
Methyl Acetate	19.1	20.0	95	57 - 157
Methyl tert-Butyl Ether	20.2	20.0	101	75 - 126
Methylcyclohexane	17.4	20.0	87	64 - 133
Styrene	20.5	20.0	102	80 - 132
Tetrachloroethene (PCE)	18.3	20.0	92	72 - 131
Toluene	19.3	20.0	96	78 - 122
Trichloroethene (TCE)	18.6	20.0	93	74 - 127
Trichlorofluoromethane (CFC 11)	17.4	20.0	87	71 - 139
Vinyl Chloride	18.2	20.0	91	71 - 136
cis-1,2-Dichloroethene	19.2	20.0	96	78 - 122
cis-1,3-Dichloropropene	20.0	20.0	100	77 - 125
m,p-Xylenes	38.5	40.0	96	79 - 126
n-Butyl Acetate	20.3	20.0	102	54 - 127
o-Xylene	19.1	20.0	96	79 - 126
trans-1,2-Dichloroethene	18.1	20.0	90	75 - 121
trans-1,3-Dichloropropene	20.6	20.0	103	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103580
Date Analyzed: 6/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251815

Lab Control Sample
RQ1106319-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	22.0	20.0	110	72 - 128
1,1,2,2-Tetrachloroethane	22.4	20.0	112	72 - 131
1,1,2-Trichloroethane	22.1	20.0	110	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	23.5	20.0	117	71 - 134
1,1-Dichloroethane (1,1-DCA)	23.8	20.0	119	76 - 122
1,1-Dichloroethene (1,1-DCE)	22.2	20.0	111	72 - 129
1,2,4-Trichlorobenzene	24.7	20.0	123	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	23.8	20.0	119	62 - 131
1,2-Dibromoethane	21.8	20.0	109	78 - 125
1,2-Dichlorobenzene	22.3	20.0	112	79 - 124
1,2-Dichloroethane	21.5	20.0	107	78 - 126
1,2-Dichloropropane	22.3	20.0	112	80 - 123
1,3-Dichlorobenzene	23.7	20.0	118	78 - 124
1,4-Dichlorobenzene	22.5	20.0	113	78 - 123
n-Butanol	1140	1000	114	70 - 130
2-Butanone (MEK)	23.0	20.0	115	60 - 133
2-Hexanone	21.6	20.0	108	61 - 131
4-Methyl-2-pentanone	22.2	20.0	111	61 - 132
Acetone	23.1	20.0	115	59 - 140
Benzene	23.2	20.0	116	78 - 121
Bromodichloromethane	23.0	20.0	115	80 - 125
Bromoform	23.6	20.0	118	73 - 132
Bromomethane	21.0	20.0	105	57 - 144
Carbon Disulfide	15.0	20.0	75	59 - 138
Carbon Tetrachloride	22.8	20.0	114	69 - 135
Chlorobenzene	23.5	20.0	118	80 - 121
Chloroethane	25.2	20.0	126	71 - 130
Chloroform	21.2	20.0	106	78 - 125
Chloromethane	24.7	20.0	124	62 - 133
Cyclohexane	17.2	20.0	86	67 - 127
Dibromochloromethane	22.4	20.0	112	78 - 133
Dichlorodifluoromethane (CFC 12)	26.5	20.0	132	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED/TR0272
Sample Matrix: Water

Service Request: R1103580
Date Analyzed: 6/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 251815

Lab Control Sample
RQ1106319-03

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
Dichloromethane	22.7	20.0	114		75 - 125
Ethylbenzene	23.4	20.0	117		78 - 123
Isopropylbenzene (Cumene)	26.8	20.0	134	*	73 - 133
Methyl Acetate	20.3	20.0	101		57 - 157
Methyl tert-Butyl Ether	21.4	20.0	107		75 - 126
Methylcyclohexane	17.7	20.0	89		64 - 133
Styrene	23.9	20.0	120		80 - 132
Tetrachloroethene (PCE)	24.2	20.0	121		72 - 131
Toluene	23.6	20.0	118		78 - 122
Trichloroethene (TCE)	22.9	20.0	114		74 - 127
Trichlorofluoromethane (CFC 11)	24.0	20.0	120		71 - 139
Vinyl Chloride	25.6	20.0	128		71 - 136
cis-1,2-Dichloroethene	23.1	20.0	115		78 - 122
cis-1,3-Dichloropropene	22.4	20.0	112		77 - 125
m,p-Xylenes	49.3	40.0	123		79 - 126
n-Butyl Acetate	21.9	20.0	110		54 - 127
o-Xylene	22.9	20.0	115		79 - 126
trans-1,2-Dichloroethene	22.6	20.0	113		75 - 121
trans-1,3-Dichloropropene	21.5	20.0	108		69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services™ CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

1 Mustard Street, Suite 250, Rochester, NY 14609 | 585.288.5380 | 800.695.7222 | 585.288.8475 (fax) PAGE 1 OF 1

Project Name: LC34 PED	Project Number: TR0272
Project Manager: Cory Reppta	Report CC:
Company/Address: GeoSyntec (Dunedin)	
Phone #	E-mail: creppta@geosyntec.com
Sampler's Signature	Sampler's Printed Name: Josefit Bartlett

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: K2 | K3 | K1

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOA's 8260 GC/MS SVOA's 8270 GC VOA's 8021 PESTICIDES 8081 PCB's 8082 METALS, TOTAL (List in comments below) METALS, DISSOLVED (List in comments below)	8260C (4BA)	Br	I	REMARKS/ ALTERNATE DESCRIPTION
BATCH54-20110623-0750	-001	6/23/11	0750	W	4		X	X		
BATCH57-20110623-1150	-002	6/23/11	1150	W	4		X	X		
BATCH67-20110623-1540	-003	6/23/11	1540	W	4		X	X	X	
				W						
TEST BLANK	Hold ⊠	-	-	-	3		X	X	X	

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other K2

SPECIAL INSTRUCTIONS/COMMENTS
Metals

as per client email KB 6/28/11

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: FL

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
X Standard

REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata X Yes ____ No

INVOICE INFORMATION
PO #:
BILL TO:

R1103580
GeoSyntec Consultants
LC34 PED

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature: Janet Barfus	Signature: Daniel Wahl	Signature	Signature	Signature	Signature
Printed Name: Janet Barfus	Printed Name: DANIEL WAHL	Printed Name	Printed Name	Printed Name	Printed Name
Firm: GeoSyntec Consultants	Firm: CAS	Firm	Firm	Firm	Firm
Date/Time: 6/24/11 1500	Date/Time: 6/25/11 1050	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return To Originator

SCOC Rev. 10/2010

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec- FL Folder Number 211-3580

Cooler received on 6/25/11 by: DPW COURIER: CAS UPS ~~FEDEX~~ VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO		
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO		
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO		
4.	Did (VOA) vials, Alkalinity, or Sulfide have significant* air bubbles?	~~YES~~	NO	N/A*	
5.	Were (Ice) or Ice packs present?	~~YES~~	NO		
6.	Where did the bottles originate?	CA~~S/ROC~~, CLIENT			
7.	Temperature of cooler(s) upon receipt:	2.6°			
	Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 6/25/11 / 1126

Thermometer ID: IR GUN#3 / ~~IR GUN#4~~ Reading From: ~~Temp Blank~~ / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 7/26/11 DPW 6/27/11

Cooler Breakdown: Date: 6/27/11 Time: 1021 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	~~YES~~	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO	
3.	Were correct containers used for the tests indicated?	~~YES~~	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

DPW 6/27/11

Bottle lot numbers: 0503 053011-2V, 0-519-005

Other Comments: #1 Vial for the Trip Blank

C Secondary Review: KB 7/26/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

July 28, 2011 Service Request No: R1103657

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34 - PED TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on June 30, 2011. For your reference, these analyses have been assigned our service request number **R1103657**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1103657
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	6/30/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Seven (7) water samples were collected by the client on 6/27-28/11 and were received for analysis at Columbia Analytical Services on 6/30/11 via a national courier. The samples were received at a cooler temperature of 3.0°C within the guidelines of 0-6°C.

Volatile Organic Compounds

Seven (7) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except for Carbon Disulfide (36.9) and Dichlorodifluoromethane (20.6) which were above the 20 %D on the 7/1/11 run and Dichlorodifluoromethane (25.7) on the 7/5/11 analytical run. Any hits for these compounds on associated runs would be considered estimated, however, all samples were non-detect for these compounds.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (RSK) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Hits above the calibration range of the standards are repeated at the appropriate dilution for the hit. The data is flagged as "D" on the report. The sample data is reported in a merged format to be consistent with other reports for this project at the client's request.

All samples were analyzed within 7 days from collection, the holding time for unpreserved vials which were to be used for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

The Laboratory Method Blanks were free from contamination except for a 1,2,4-Trichlorobenzene hit in the 7/1/11 and 7/5/11 blanks. No data required "B" flags however.

No other analytical or QC problems were encountered.

Inorganic Parameters

Seven (7) water samples were analyzed for Bromide and four (4) samples were analyzed for Iodide by IC method 300.0.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

Approved by Karen S Burdine **Date** 7/29/11

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burdett **Date** 7/29/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1103657

Lab ID	Client ID
R1103657-001	BATCH 112-20110627
R1103657-002	BATCH 117-20110627
R1103657-003	BATCH 127-20110627
R1103657-004	BATCH 134-20110627
R1103657-005	BATCH 136-20110628
R1103657-006	BATCH 144-20110628
R1103657-007	BATCH 152-20110628

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1000
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 112-20110627		
Lab Code:	R1103657-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**76.0**		mg/L	2.0	20	NA	7/25/11 18:00	
Iodide	300.0	**100**		mg/L	20	100	NA	7/12/11 18:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1000
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 112-20110627	**Units:**	µg/L
Lab Code:	R1103657-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130000	U	130000	5800	25000	NA	7/1/11 18:20		252201	
1,1,2,2-Tetrachloroethane	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
1,1,2-Trichloroethane	130000	U	130000	5800	25000	NA	7/1/11 18:20		252201	
1,1,2-Trichloro-1,2,2-trifluoroethane	130000	U	130000	7800	25000	NA	7/1/11 18:20		252201	
1,1-Dichloroethane (1,1-DCA)	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
1,1-Dichloroethene (1,1-DCE)	130000	U	130000	7300	25000	NA	7/1/11 18:20		252201	
1,2,4-Trichlorobenzene	130000	U	130000	6500	25000	NA	7/1/11 18:20		252201	
1,2-Dibromo-3-chloropropane (DBCP)	130000	U	130000	9500	25000	NA	7/1/11 18:20		252201	
1,2-Dibromoethane	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
1,2-Dichlorobenzene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
1,2-Dichloroethane	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
1,2-Dichloropropane	130000	U	130000	7100	25000	NA	7/1/11 18:20		252201	
1,3-Dichlorobenzene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
1,4-Dichlorobenzene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
n-Butanol	1300000	U	1300000	270000	25000	NA	7/1/11 18:20		252201	
2-Butanone (MEK)	250000	U	250000	13000	25000	NA	7/1/11 18:20		252201	
2-Hexanone	250000	U	250000	8800	25000	NA	7/1/11 18:20		252201	
4-Methyl-2-pentanone	250000	U	250000	6800	25000	NA	7/1/11 18:20		252201	
Acetone	500000	U	500000	25000	25000	NA	7/1/11 18:20		252201	
Benzene	130000	U	130000	5300	25000	NA	7/1/11 18:20		252201	
Bromodichloromethane	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Bromoform	130000	U	130000	6800	25000	NA	7/1/11 18:20		252201	
Bromomethane	130000	U	130000	7800	25000	NA	7/1/11 18:20		252201	
Carbon Disulfide	250000	U	250000	5000	25000	NA	7/1/11 18:20		252201	
Carbon Tetrachloride	130000	U	130000	6800	25000	NA	7/1/11 18:20		252201	
Chlorobenzene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Chloroethane	130000	U	130000	7800	25000	NA	7/1/11 18:20		252201	
Chloroform	130000	U	130000	5500	25000	NA	7/1/11 18:20		252201	
Chloromethane	130000	U	130000	6000	25000	NA	7/1/11 18:20		252201	
Cyclohexane	250000	U	250000	6000	25000	NA	7/1/11 18:20		252201	
Dibromochloromethane	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Dichlorodifluoromethane (CFC 12)	130000	U	130000	15000	25000	NA	7/1/11 18:20		252201	
Dichloromethane	130000	U	130000	5500	25000	NA	7/1/11 18:20		252201	
Ethylbenzene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Isopropylbenzene (Cumene)	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Methyl Acetate	250000	U	250000	5800	25000	NA	7/1/11 18:20		252201	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1000
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 112-20110627	**Units:**	µg/L
Lab Code:	R1103657-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Methylcyclohexane	250000	U	250000	6300	25000	NA	7/1/11 18:20		252201	
Styrene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Tetrachloroethene (PCE)	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Toluene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Trichloroethene (TCE)	130000	U	130000	5800	25000	NA	7/1/11 18:20		252201	
Trichlorofluoromethane (CFC 11)	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
Vinyl Chloride	130000	U	130000	5800	25000	NA	7/1/11 18:20		252201	
cis-1,2-Dichloroethene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
cis-1,3-Dichloropropene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
m,p-Xylenes	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
n-Butyl Acetate	**3800000**		130000	5300	25000	NA	7/1/11 18:20		252201	
o-Xylene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
trans-1,2-Dichloroethene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	
trans-1,3-Dichloropropene	130000	U	130000	5000	25000	NA	7/1/11 18:20		252201	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	7/1/11 18:20	
Dibromofluoromethane	107	89-119	7/1/11 18:20	
Toluene-d8	107	87-121	7/1/11 18:20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1110
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 117-20110627		
Lab Code:	R1103657-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**69.4**		mg/L	2.0	20	NA	7/25/11 19:09	
Iodide	300.0	**145**		mg/L	20	100	NA	7/12/11 19:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1110
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 117-20110627	**Units:**	µg/L
Lab Code:	R1103657-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50000	U	50000	2300	10000	NA	7/1/11 18:51		252201	
1,1,2,2-Tetrachloroethane	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
1,1,2-Trichloroethane	50000	U	50000	2300	10000	NA	7/1/11 18:51		252201	
1,1,2-Trichloro-1,2,2-trifluoroethane	50000	U	50000	3100	10000	NA	7/1/11 18:51		252201	
1,1-Dichloroethane (1,1-DCA)	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
1,1-Dichloroethene (1,1-DCE)	50000	U	50000	2900	10000	NA	7/1/11 18:51		252201	
1,2,4-Trichlorobenzene	50000	U	50000	2600	10000	NA	7/1/11 18:51		252201	
1,2-Dibromo-3-chloropropane (DBCP)	50000	U	50000	3800	10000	NA	7/1/11 18:51		252201	
1,2-Dibromoethane	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
1,2-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
1,2-Dichloroethane	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
1,2-Dichloropropane	50000	U	50000	2900	10000	NA	7/1/11 18:51		252201	
1,3-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
1,4-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
n-Butanol	500000	U	500000	110000	10000	NA	7/1/11 18:51		252201	
2-Butanone (MEK)	100000	U	100000	5100	10000	NA	7/1/11 18:51		252201	
2-Hexanone	100000	U	100000	3500	10000	NA	7/1/11 18:51		252201	
4-Methyl-2-pentanone	100000	U	100000	2700	10000	NA	7/1/11 18:51		252201	
Acetone	200000	U	200000	9800	10000	NA	7/1/11 18:51		252201	
Benzene	50000	U	50000	2100	10000	NA	7/1/11 18:51		252201	
Bromodichloromethane	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Bromoform	50000	U	50000	2700	10000	NA	7/1/11 18:51		252201	
Bromomethane	50000	U	50000	3100	10000	NA	7/1/11 18:51		252201	
Carbon Disulfide	100000	U	100000	2000	10000	NA	7/1/11 18:51		252201	
Carbon Tetrachloride	50000	U	50000	2700	10000	NA	7/1/11 18:51		252201	
Chlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Chloroethane	50000	U	50000	3100	10000	NA	7/1/11 18:51		252201	
Chloroform	50000	U	50000	2200	10000	NA	7/1/11 18:51		252201	
Chloromethane	50000	U	50000	2400	10000	NA	7/1/11 18:51		252201	
Cyclohexane	100000	U	100000	2400	10000	NA	7/1/11 18:51		252201	
Dibromochloromethane	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Dichlorodifluoromethane (CFC 12)	50000	U	50000	5700	10000	NA	7/1/11 18:51		252201	
Dichloromethane	50000	U	50000	2200	10000	NA	7/1/11 18:51		252201	
Ethylbenzene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Isopropylbenzene (Cumene)	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Methyl Acetate	100000	U	100000	2300	10000	NA	7/1/11 18:51		252201	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1110
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 117-20110627	**Units:**	µg/L
Lab Code:	R1103657-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Methylcyclohexane	100000	U	100000	2500	10000	NA	7/1/11 18:51		252201	
Styrene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Tetrachloroethene (PCE)	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Toluene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Trichloroethene (TCE)	50000	U	50000	2300	10000	NA	7/1/11 18:51		252201	
Trichlorofluoromethane (CFC 11)	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
Vinyl Chloride	50000	U	50000	2300	10000	NA	7/1/11 18:51		252201	
cis-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
cis-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
m,p-Xylenes	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
n-Butyl Acetate	**1800000**		50000	2100	10000	NA	7/1/11 18:51		252201	
o-Xylene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
trans-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	
trans-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/1/11 18:51		252201	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	7/1/11 18:51	
Dibromofluoromethane	107	89-119	7/1/11 18:51	
Toluene-d8	108	87-121	7/1/11 18:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1315
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 127-20110627		
Lab Code:	R1103657-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**68.0**		mg/L	2.0	20	NA	7/25/11 19:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1315
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 127-20110627	**Units:**	µg/L
Lab Code:	R1103657-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50000	U	50000	2300	10000	NA	7/1/11 19:51		252201	
1,1,2,2-Tetrachloroethane	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
1,1,2-Trichloroethane	50000	U	50000	2300	10000	NA	7/1/11 19:51		252201	
1,1,2-Trichloro-1,2,2-trifluoroethane	50000	U	50000	3100	10000	NA	7/1/11 19:51		252201	
1,1-Dichloroethane (1,1-DCA)	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
1,1-Dichloroethene (1,1-DCE)	50000	U	50000	2900	10000	NA	7/1/11 19:51		252201	
1,2,4-Trichlorobenzene	50000	U	50000	2600	10000	NA	7/1/11 19:51		252201	
1,2-Dibromo-3-chloropropane (DBCP)	50000	U	50000	3800	10000	NA	7/1/11 19:51		252201	
1,2-Dibromoethane	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
1,2-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
1,2-Dichloroethane	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
1,2-Dichloropropane	50000	U	50000	2900	10000	NA	7/1/11 19:51		252201	
1,3-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
1,4-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
n-Butanol	500000	U	500000	110000	10000	NA	7/1/11 19:51		252201	
2-Butanone (MEK)	100000	U	100000	5100	10000	NA	7/1/11 19:51		252201	
2-Hexanone	100000	U	100000	3500	10000	NA	7/1/11 19:51		252201	
4-Methyl-2-pentanone	100000	U	100000	2700	10000	NA	7/1/11 19:51		252201	
Acetone	200000	U	200000	9800	10000	NA	7/1/11 19:51		252201	
Benzene	50000	U	50000	2100	10000	NA	7/1/11 19:51		252201	
Bromodichloromethane	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Bromoform	50000	U	50000	2700	10000	NA	7/1/11 19:51		252201	
Bromomethane	50000	U	50000	3100	10000	NA	7/1/11 19:51		252201	
Carbon Disulfide	100000	U	100000	2000	10000	NA	7/1/11 19:51		252201	
Carbon Tetrachloride	50000	U	50000	2700	10000	NA	7/1/11 19:51		252201	
Chlorobenzene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Chloroethane	50000	U	50000	3100	10000	NA	7/1/11 19:51		252201	
Chloroform	50000	U	50000	2200	10000	NA	7/1/11 19:51		252201	
Chloromethane	50000	U	50000	2400	10000	NA	7/1/11 19:51		252201	
Cyclohexane	100000	U	100000	2400	10000	NA	7/1/11 19:51		252201	
Dibromochloromethane	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Dichlorodifluoromethane (CFC 12)	50000	U	50000	5700	10000	NA	7/1/11 19:51		252201	
Dichloromethane	50000	U	50000	2200	10000	NA	7/1/11 19:51		252201	
Ethylbenzene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Isopropylbenzene (Cumene)	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Methyl Acetate	100000	U	100000	2300	10000	NA	7/1/11 19:51		252201	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1315
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 127-20110627	**Units:**	µg/L
Lab Code:	R1103657-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Methylcyclohexane	100000	U	100000	2500	10000	NA	7/1/11 19:51		252201	
Styrene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Tetrachloroethene (PCE)	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Toluene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Trichloroethene (TCE)	50000	U	50000	2300	10000	NA	7/1/11 19:51		252201	
Trichlorofluoromethane (CFC 11)	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
Vinyl Chloride	50000	U	50000	2300	10000	NA	7/1/11 19:51		252201	
cis-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
cis-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
m,p-Xylenes	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
n-Butyl Acetate	**1100000**		50000	2100	10000	NA	7/1/11 19:51		252201	
o-Xylene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
trans-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	
trans-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/1/11 19:51		252201	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/1/11 19:51	
Dibromofluoromethane	107	89-119	7/1/11 19:51	
Toluene-d8	108	87-121	7/1/11 19:51	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1450
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 134-20110627		
Lab Code:	R1103657-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**68.5**		mg/L	2.0	20	NA	7/25/11 19:36	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1450
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 134-20110627	**Units:**	µg/L
Lab Code:	R1103657-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100000	U	100000	4600	20000	NA	7/1/11 19:21		252201	
1,1,2,2-Tetrachloroethane	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
1,1,2-Trichloroethane	100000	U	100000	4600	20000	NA	7/1/11 19:21		252201	
1,1,2-Trichloro-1,2,2-trifluoroethane	100000	U	100000	6200	20000	NA	7/1/11 19:21		252201	
1,1-Dichloroethane (1,1-DCA)	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
1,1-Dichloroethene (1,1-DCE)	100000	U	100000	5800	20000	NA	7/1/11 19:21		252201	
1,2,4-Trichlorobenzene	100000	U	100000	5200	20000	NA	7/1/11 19:21		252201	
1,2-Dibromo-3-chloropropane (DBCP)	100000	U	100000	7600	20000	NA	7/1/11 19:21		252201	
1,2-Dibromoethane	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
1,2-Dichlorobenzene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
1,2-Dichloroethane	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
1,2-Dichloropropane	100000	U	100000	5700	20000	NA	7/1/11 19:21		252201	
1,3-Dichlorobenzene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
1,4-Dichlorobenzene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
n-Butanol	1000000	U	1000000	210000	20000	NA	7/1/11 19:21		252201	
2-Butanone (MEK)	200000	U	200000	11000	20000	NA	7/1/11 19:21		252201	
2-Hexanone	200000	U	200000	7000	20000	NA	7/1/11 19:21		252201	
4-Methyl-2-pentanone	200000	U	200000	5400	20000	NA	7/1/11 19:21		252201	
Acetone	400000	U	400000	20000	20000	NA	7/1/11 19:21		252201	
Benzene	100000	U	100000	4200	20000	NA	7/1/11 19:21		252201	
Bromodichloromethane	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Bromoform	100000	U	100000	5400	20000	NA	7/1/11 19:21		252201	
Bromomethane	100000	U	100000	6200	20000	NA	7/1/11 19:21		252201	
Carbon Disulfide	200000	U	200000	4000	20000	NA	7/1/11 19:21		252201	
Carbon Tetrachloride	100000	U	100000	5400	20000	NA	7/1/11 19:21		252201	
Chlorobenzene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Chloroethane	100000	U	100000	6200	20000	NA	7/1/11 19:21		252201	
Chloroform	100000	U	100000	4400	20000	NA	7/1/11 19:21		252201	
Chloromethane	100000	U	100000	4800	20000	NA	7/1/11 19:21		252201	
Cyclohexane	200000	U	200000	4800	20000	NA	7/1/11 19:21		252201	
Dibromochloromethane	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Dichlorodifluoromethane (CFC 12)	100000	U	100000	12000	20000	NA	7/1/11 19:21		252201	
Dichloromethane	100000	U	100000	4400	20000	NA	7/1/11 19:21		252201	
Ethylbenzene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Isopropylbenzene (Cumene)	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Methyl Acetate	200000	U	200000	4600	20000	NA	7/1/11 19:21		252201	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/27/11 1450
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 134-20110627	**Units:**	µg/L
Lab Code:	R1103657-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Methylcyclohexane	200000	U	200000	5000	20000	NA	7/1/11 19:21		252201	
Styrene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Tetrachloroethene (PCE)	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Toluene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Trichloroethene (TCE)	100000	U	100000	4600	20000	NA	7/1/11 19:21		252201	
Trichlorofluoromethane (CFC 11)	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
Vinyl Chloride	100000	U	100000	4600	20000	NA	7/1/11 19:21		252201	
cis-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
cis-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
m,p-Xylenes	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
n-Butyl Acetate	**2300000**		100000	4200	20000	NA	7/1/11 19:21		252201	
o-Xylene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
trans-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	
trans-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	7/1/11 19:21		252201	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/1/11 19:21	
Dibromofluoromethane	107	89-119	7/1/11 19:21	
Toluene-d8	109	87-121	7/1/11 19:21	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 0900
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 136-20110628		
Lab Code:	R1103657-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**63.4**		mg/L	2.0	20	NA	7/25/11 19:50	
Iodide	300.0	**105**		mg/L	20	100	NA	7/12/11 19:11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 0900
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 136-20110628	**Units:**	µg/L
Lab Code:	R1103657-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50000	U	50000	2300	10000	NA	7/5/11 14:06		252203	
1,1,2,2-Tetrachloroethane	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
1,1,2-Trichloroethane	50000	U	50000	2300	10000	NA	7/5/11 14:06		252203	
1,1,2-Trichloro-1,2,2-trifluoroethane	50000	U	50000	3100	10000	NA	7/5/11 14:06		252203	
1,1-Dichloroethane (1,1-DCA)	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
1,1-Dichloroethene (1,1-DCE)	50000	U	50000	2900	10000	NA	7/5/11 14:06		252203	
1,2,4-Trichlorobenzene	50000	U	50000	2600	10000	NA	7/5/11 14:06		252203	
1,2-Dibromo-3-chloropropane (DBCP)	50000	U	50000	3800	10000	NA	7/5/11 14:06		252203	
1,2-Dibromoethane	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
1,2-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
1,2-Dichloroethane	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
1,2-Dichloropropane	50000	U	50000	2900	10000	NA	7/5/11 14:06		252203	
1,3-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
1,4-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
n-Butanol	500000	U	500000	110000	10000	NA	7/5/11 14:06		252203	
2-Butanone (MEK)	100000	U	100000	5100	10000	NA	7/5/11 14:06		252203	
2-Hexanone	100000	U	100000	3500	10000	NA	7/5/11 14:06		252203	
4-Methyl-2-pentanone	100000	U	100000	2700	10000	NA	7/5/11 14:06		252203	
Acetone	200000	U	200000	9800	10000	NA	7/5/11 14:06		252203	
Benzene	50000	U	50000	2100	10000	NA	7/5/11 14:06		252203	
Bromodichloromethane	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Bromoform	50000	U	50000	2700	10000	NA	7/5/11 14:06		252203	
Bromomethane	50000	U	50000	3100	10000	NA	7/5/11 14:06		252203	
Carbon Disulfide	100000	U	100000	2000	10000	NA	7/5/11 14:06		252203	
Carbon Tetrachloride	50000	U	50000	2700	10000	NA	7/5/11 14:06		252203	
Chlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Chloroethane	50000	U	50000	3100	10000	NA	7/5/11 14:06		252203	
Chloroform	50000	U	50000	2200	10000	NA	7/5/11 14:06		252203	
Chloromethane	50000	U	50000	2400	10000	NA	7/5/11 14:06		252203	
Cyclohexane	100000	U	100000	2400	10000	NA	7/5/11 14:06		252203	
Dibromochloromethane	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Dichlorodifluoromethane (CFC 12)	50000	U	50000	5700	10000	NA	7/5/11 14:06		252203	
Dichloromethane	50000	U	50000	2200	10000	NA	7/5/11 14:06		252203	
Ethylbenzene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Isopropylbenzene (Cumene)	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Methyl Acetate	100000	U	100000	2300	10000	NA	7/5/11 14:06		252203	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 0900
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 136-20110628	**Units:**	µg/L
Lab Code:	R1103657-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Methylcyclohexane	100000	U	100000	2500	10000	NA	7/5/11 14:06		252203	
Styrene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Tetrachloroethene (PCE)	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Toluene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Trichloroethene (TCE)	50000	U	50000	2300	10000	NA	7/5/11 14:06		252203	
Trichlorofluoromethane (CFC 11)	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
Vinyl Chloride	50000	U	50000	2300	10000	NA	7/5/11 14:06		252203	
cis-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
cis-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
m,p-Xylenes	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
n-Butyl Acetate	**2500000**	D	100000	4200	20000	NA	7/5/11 15:50		252203	
o-Xylene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
trans-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	
trans-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/5/11 14:06		252203	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/5/11 14:06	
Dibromofluoromethane	109	89-119	7/5/11 14:06	
Toluene-d8	108	87-121	7/5/11 14:06	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 1040
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 144-20110628		
Lab Code:	R1103657-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**16.8**		mg/L	1.0	10	NA	7/6/11 05:36	
Iodide	300.0	**27**		mg/L	20	100	NA	7/12/11 19:20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 1040
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 144-20110628	**Units:**	µg/L
Lab Code:	R1103657-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50000	U	50000	2300	10000	NA	7/5/11 16:21		252203	
1,1,2,2-Tetrachloroethane	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
1,1,2-Trichloroethane	50000	U	50000	2300	10000	NA	7/5/11 16:21		252203	
1,1,2-Trichloro-1,2,2-trifluoroethane	50000	U	50000	3100	10000	NA	7/5/11 16:21		252203	
1,1-Dichloroethane (1,1-DCA)	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
1,1-Dichloroethene (1,1-DCE)	50000	U	50000	2900	10000	NA	7/5/11 16:21		252203	
1,2,4-Trichlorobenzene	50000	U	50000	2600	10000	NA	7/5/11 16:21		252203	
1,2-Dibromo-3-chloropropane (DBCP)	50000	U	50000	3800	10000	NA	7/5/11 16:21		252203	
1,2-Dibromoethane	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
1,2-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
1,2-Dichloroethane	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
1,2-Dichloropropane	50000	U	50000	2900	10000	NA	7/5/11 16:21		252203	
1,3-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
1,4-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
n-Butanol	500000	U	500000	110000	10000	NA	7/5/11 16:21		252203	
2-Butanone (MEK)	100000	U	100000	5100	10000	NA	7/5/11 16:21		252203	
2-Hexanone	100000	U	100000	3500	10000	NA	7/5/11 16:21		252203	
4-Methyl-2-pentanone	100000	U	100000	2700	10000	NA	7/5/11 16:21		252203	
Acetone	200000	U	200000	9800	10000	NA	7/5/11 16:21		252203	
Benzene	50000	U	50000	2100	10000	NA	7/5/11 16:21		252203	
Bromodichloromethane	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Bromoform	50000	U	50000	2700	10000	NA	7/5/11 16:21		252203	
Bromomethane	50000	U	50000	3100	10000	NA	7/5/11 16:21		252203	
Carbon Disulfide	100000	U	100000	2000	10000	NA	7/5/11 16:21		252203	
Carbon Tetrachloride	50000	U	50000	2700	10000	NA	7/5/11 16:21		252203	
Chlorobenzene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Chloroethane	50000	U	50000	3100	10000	NA	7/5/11 16:21		252203	
Chloroform	50000	U	50000	2200	10000	NA	7/5/11 16:21		252203	
Chloromethane	50000	U	50000	2400	10000	NA	7/5/11 16:21		252203	
Cyclohexane	100000	U	100000	2400	10000	NA	7/5/11 16:21		252203	
Dibromochloromethane	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Dichlorodifluoromethane (CFC 12)	50000	U	50000	5700	10000	NA	7/5/11 16:21		252203	
Dichloromethane	50000	U	50000	2200	10000	NA	7/5/11 16:21		252203	
Ethylbenzene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Isopropylbenzene (Cumene)	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Methyl Acetate	100000	U	100000	2300	10000	NA	7/5/11 16:21		252203	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 1040
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 144-20110628	**Units:**	µg/L
Lab Code:	R1103657-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Methylcyclohexane	100000	U	100000	2500	10000	NA	7/5/11 16:21		252203	
Styrene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Tetrachloroethene (PCE)	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Toluene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Trichloroethene (TCE)	50000	U	50000	2300	10000	NA	7/5/11 16:21		252203	
Trichlorofluoromethane (CFC 11)	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
Vinyl Chloride	50000	U	50000	2300	10000	NA	7/5/11 16:21		252203	
cis-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
cis-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
m,p-Xylenes	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
n-Butyl Acetate	**1800000**		50000	2100	10000	NA	7/5/11 16:21		252203	
o-Xylene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
trans-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	
trans-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/5/11 16:21		252203	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	7/5/11 16:21	
Dibromofluoromethane	105	89-119	7/5/11 16:21	
Toluene-d8	107	87-121	7/5/11 16:21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 1237
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 152-20110628		
Lab Code:	R1103657-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**64.2**		mg/L	2.0	20	NA	7/25/11 20:18	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 1237
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 152-20110628	**Units:**	µg/L
Lab Code:	R1103657-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100000	U	100000	4600	20000	NA	7/5/11 15:20		252203	
1,1,2,2-Tetrachloroethane	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
1,1,2-Trichloroethane	100000	U	100000	4600	20000	NA	7/5/11 15:20		252203	
1,1,2-Trichloro-1,2,2-trifluoroethane	100000	U	100000	6200	20000	NA	7/5/11 15:20		252203	
1,1-Dichloroethane (1,1-DCA)	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
1,1-Dichloroethene (1,1-DCE)	100000	U	100000	5800	20000	NA	7/5/11 15:20		252203	
1,2,4-Trichlorobenzene	100000	U	100000	5200	20000	NA	7/5/11 15:20		252203	
1,2-Dibromo-3-chloropropane (DBCP)	100000	U	100000	7600	20000	NA	7/5/11 15:20		252203	
1,2-Dibromoethane	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
1,2-Dichlorobenzene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
1,2-Dichloroethane	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
1,2-Dichloropropane	100000	U	100000	5700	20000	NA	7/5/11 15:20		252203	
1,3-Dichlorobenzene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
1,4-Dichlorobenzene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
n-Butanol	1000000	U	1000000	210000	20000	NA	7/5/11 15:20		252203	
2-Butanone (MEK)	200000	U	200000	11000	20000	NA	7/5/11 15:20		252203	
2-Hexanone	200000	U	200000	7000	20000	NA	7/5/11 15:20		252203	
4-Methyl-2-pentanone	200000	U	200000	5400	20000	NA	7/5/11 15:20		252203	
Acetone	400000	U	400000	20000	20000	NA	7/5/11 15:20		252203	
Benzene	100000	U	100000	4200	20000	NA	7/5/11 15:20		252203	
Bromodichloromethane	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Bromoform	100000	U	100000	5400	20000	NA	7/5/11 15:20		252203	
Bromomethane	100000	U	100000	6200	20000	NA	7/5/11 15:20		252203	
Carbon Disulfide	200000	U	200000	4000	20000	NA	7/5/11 15:20		252203	
Carbon Tetrachloride	100000	U	100000	5400	20000	NA	7/5/11 15:20		252203	
Chlorobenzene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Chloroethane	100000	U	100000	6200	20000	NA	7/5/11 15:20		252203	
Chloroform	100000	U	100000	4400	20000	NA	7/5/11 15:20		252203	
Chloromethane	100000	U	100000	4800	20000	NA	7/5/11 15:20		252203	
Cyclohexane	200000	U	200000	4800	20000	NA	7/5/11 15:20		252203	
Dibromochloromethane	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Dichlorodifluoromethane (CFC 12)	100000	U	100000	12000	20000	NA	7/5/11 15:20		252203	
Dichloromethane	100000	U	100000	4400	20000	NA	7/5/11 15:20		252203	
Ethylbenzene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Isopropylbenzene (Cumene)	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Methyl Acetate	200000	U	200000	4600	20000	NA	7/5/11 15:20		252203	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	6/28/11 1237
Sample Matrix:	Water	**Date Received:**	6/30/11
Sample Name:	BATCH 152-20110628	**Units:**	µg/L
Lab Code:	R1103657-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Methylcyclohexane	200000	U	200000	5000	20000	NA	7/5/11 15:20		252203	
Styrene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Tetrachloroethene (PCE)	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Toluene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Trichloroethene (TCE)	100000	U	100000	4600	20000	NA	7/5/11 15:20		252203	
Trichlorofluoromethane (CFC 11)	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
Vinyl Chloride	100000	U	100000	4600	20000	NA	7/5/11 15:20		252203	
cis-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
cis-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
m,p-Xylenes	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
n-Butyl Acetate	**2100000**		100000	4200	20000	NA	7/5/11 15:20		252203	
o-Xylene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
trans-1,2-Dichloroethene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	
trans-1,3-Dichloropropene	100000	U	100000	4000	20000	NA	7/5/11 15:20		252203	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	7/5/11 15:20	
Dibromofluoromethane	105	89-119	7/5/11 15:20	
Toluene-d8	108	87-121	7/5/11 15:20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103657-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	7/6/11 01:34	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/12/11 17:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103657-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	7/25/11 15:32	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106449-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/1/11 12:12		252201	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/1/11 12:12		252201	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/1/11 12:12		252201	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/1/11 12:12		252201	
1,2,4-Trichlorobenzene	**0.30**	J	5.0	0.26	1	NA	7/1/11 12:12		252201	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/1/11 12:12		252201	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/1/11 12:12		252201	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
n-Butanol	50	U	50	11	1	NA	7/1/11 12:12		252201	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/1/11 12:12		252201	
2-Hexanone	10	U	10	0.35	1	NA	7/1/11 12:12		252201	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/1/11 12:12		252201	
Acetone	20	U	20	0.98	1	NA	7/1/11 12:12		252201	
Benzene	5.0	U	5.0	0.21	1	NA	7/1/11 12:12		252201	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Bromoform	5.0	U	5.0	0.27	1	NA	7/1/11 12:12		252201	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/1/11 12:12		252201	
Carbon Disulfide	10	U	10	0.20	1	NA	7/1/11 12:12		252201	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/1/11 12:12		252201	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/1/11 12:12		252201	
Chloroform	5.0	U	5.0	0.22	1	NA	7/1/11 12:12		252201	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/1/11 12:12		252201	
Cyclohexane	10	U	10	0.24	1	NA	7/1/11 12:12		252201	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/1/11 12:12		252201	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/1/11 12:12		252201	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Methyl Acetate	10	U	10	0.23	1	NA	7/1/11 12:12		252201	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106449-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252201

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Methylcyclohexane	10	U	10	0.25	1	NA	7/1/11 12:12		252201	
Styrene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Toluene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/1/11 12:12		252201	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/1/11 12:12		252201	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/1/11 12:12		252201	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/1/11 12:12		252201	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/1/11 12:12	
Dibromofluoromethane	106	89-119	7/1/11 12:12	
Toluene-d8	107	87-121	7/1/11 12:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106506-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/5/11 13:36		252203	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/5/11 13:36		252203	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/5/11 13:36		252203	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/5/11 13:36		252203	
1,2,4-Trichlorobenzene	**0.34**	J	5.0	0.26	1	NA	7/5/11 13:36		252203	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/5/11 13:36		252203	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/5/11 13:36		252203	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
n-Butanol	50	U	50	11	1	NA	7/5/11 13:36		252203	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/5/11 13:36		252203	
2-Hexanone	10	U	10	0.35	1	NA	7/5/11 13:36		252203	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/5/11 13:36		252203	
Acetone	20	U	20	0.98	1	NA	7/5/11 13:36		252203	
Benzene	5.0	U	5.0	0.21	1	NA	7/5/11 13:36		252203	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Bromoform	5.0	U	5.0	0.27	1	NA	7/5/11 13:36		252203	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/5/11 13:36		252203	
Carbon Disulfide	10	U	10	0.20	1	NA	7/5/11 13:36		252203	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/5/11 13:36		252203	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/5/11 13:36		252203	
Chloroform	5.0	U	5.0	0.22	1	NA	7/5/11 13:36		252203	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/5/11 13:36		252203	
Cyclohexane	10	U	10	0.24	1	NA	7/5/11 13:36		252203	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/5/11 13:36		252203	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/5/11 13:36		252203	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Methyl Acetate	10	U	10	0.23	1	NA	7/5/11 13:36		252203	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103657
Project:	LC34 - PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106506-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252203

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Methylcyclohexane	10	U	10	0.25	1	NA	7/5/11 13:36		252203	
Styrene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Toluene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/5/11 13:36		252203	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/5/11 13:36		252203	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/5/11 13:36		252203	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/5/11 13:36		252203	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/5/11 13:36	
Dibromofluoromethane	108	89-119	7/5/11 13:36	
Toluene-d8	109	87-121	7/5/11 13:36	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 - PED TR0272
Sample Matrix: Water

Service Request: R1103657
Date Analyzed: 7/ 6/11 - 7/12/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103657-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.05	1.00	105	90 - 110
Iodide	300.0	0.958	1.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 - PED TR0272
Sample Matrix: Water

Service Request: R1103657
Date Analyzed: 7/25/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103657-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.07	1.00	107	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 - PED TR0272
Sample Matrix: Water

Service Request: R1103657
Date Analyzed: 7/ 1/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252201

Lab Control Sample
RQ1106449-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.4	20.0	82	72 - 128
1,1,2,2-Tetrachloroethane	21.4	20.0	107	72 - 131
1,1,2-Trichloroethane	22.5	20.0	112	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.6	20.0	83	71 - 134
1,1-Dichloroethane (1,1-DCA)	19.0	20.0	95	76 - 122
1,1-Dichloroethene (1,1-DCE)	16.8	20.0	84	72 - 129
1,2,4-Trichlorobenzene	21.1	20.0	105	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	22.6	20.0	113	62 - 131
1,2-Dibromoethane	21.1	20.0	106	78 - 125
1,2-Dichlorobenzene	20.2	20.0	101	79 - 124
1,2-Dichloroethane	20.3	20.0	102	78 - 126
1,2-Dichloropropane	19.4	20.0	97	80 - 123
1,3-Dichlorobenzene	19.7	20.0	98	78 - 124
1,4-Dichlorobenzene	19.8	20.0	99	78 - 123
n-Butanol	1170	1000	117	70 - 130
2-Butanone (MEK)	22.3	20.0	111	60 - 133
2-Hexanone	21.1	20.0	105	61 - 131
4-Methyl-2-pentanone	21.9	20.0	109	61 - 132
Acetone	22.7	20.0	114	59 - 140
Benzene	19.1	20.0	96	78 - 121
Bromodichloromethane	20.4	20.0	102	80 - 125
Bromoform	22.6	20.0	113	73 - 132
Bromomethane	19.8	20.0	99	57 - 144
Carbon Disulfide	18.9	20.0	95	59 - 138
Carbon Tetrachloride	17.0	20.0	85	69 - 135
Chlorobenzene	19.5	20.0	97	80 - 121
Chloroethane	19.6	20.0	98	71 - 130
Chloroform	17.7	20.0	89	78 - 125
Chloromethane	19.9	20.0	99	62 - 133
Cyclohexane	18.7	20.0	94	67 - 127
Dibromochloromethane	21.8	20.0	109	78 - 133
Dichlorodifluoromethane (CFC 12)	18.7	20.0	93	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 - PED TR0272
Sample Matrix: Water

Service Request: R1103657
Date Analyzed: 7/ 1/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252201

Lab Control Sample
RQ1106449-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.9	20.0	100	75 - 125
Ethylbenzene	18.1	20.0	90	78 - 123
Isopropylbenzene (Cumene)	20.7	20.0	103	73 - 133
Methyl Acetate	20.6	20.0	103	57 - 157
Methyl tert-Butyl Ether	20.9	20.0	104	75 - 126
Methylcyclohexane	18.9	20.0	95	64 - 133
Styrene	19.8	20.0	99	80 - 132
Tetrachloroethene (PCE)	18.1	20.0	91	72 - 131
Toluene	19.1	20.0	96	78 - 122
Trichloroethene (TCE)	18.4	20.0	92	74 - 127
Trichlorofluoromethane (CFC 11)	17.4	20.0	87	71 - 139
Vinyl Chloride	19.5	20.0	97	71 - 136
cis-1,2-Dichloroethene	19.5	20.0	97	78 - 122
cis-1,3-Dichloropropene	20.2	20.0	101	77 - 125
m,p-Xylenes	38.5	40.0	96	79 - 126
n-Butyl Acetate	20.6	20.0	103	54 - 127
o-Xylene	18.9	20.0	94	79 - 126
trans-1,2-Dichloroethene	18.1	20.0	90	75 - 121
trans-1,3-Dichloropropene	20.6	20.0	103	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 - PED TR0272
Sample Matrix: Water

Service Request: R1103657
Date Analyzed: 7/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252203

Analyte Name	Lab Control Sample RQ1106506-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	14.8	20.0	74	72 - 128
1,1,2,2-Tetrachloroethane	20.3	20.0	101	72 - 131
1,1,2-Trichloroethane	20.4	20.0	102	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.6	20.0	78	71 - 134
1,1-Dichloroethane (1,1-DCA)	17.9	20.0	89	76 - 122
1,1-Dichloroethene (1,1-DCE)	14.9	20.0	74	72 - 129
1,2,4-Trichlorobenzene	19.4	20.0	97	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.8	20.0	109	62 - 131
1,2-Dibromoethane	20.1	20.0	100	78 - 125
1,2-Dichlorobenzene	19.1	20.0	96	79 - 124
1,2-Dichloroethane	18.3	20.0	92	78 - 126
1,2-Dichloropropane	18.2	20.0	91	80 - 123
1,3-Dichlorobenzene	18.9	20.0	94	78 - 124
1,4-Dichlorobenzene	18.8	20.0	94	78 - 123
n-Butanol	986	1000	99	70 - 130
2-Butanone (MEK)	22.0	20.0	110	60 - 133
2-Hexanone	18.9	20.0	95	61 - 131
4-Methyl-2-pentanone	20.2	20.0	101	61 - 132
Acetone	21.2	20.0	106	59 - 140
Benzene	17.5	20.0	87	78 - 121
Bromodichloromethane	18.5	20.0	92	80 - 125
Bromoform	22.0	20.0	110	73 - 132
Bromomethane	15.7	20.0	78	57 - 144
Carbon Disulfide	14.8	20.0	74	59 - 138
Carbon Tetrachloride	14.8	20.0	74	69 - 135
Chlorobenzene	18.3	20.0	91	80 - 121
Chloroethane	17.3	20.0	87	71 - 130
Chloroform	16.7	20.0	84	78 - 125
Chloromethane	17.7	20.0	88	62 - 133
Cyclohexane	16.0	20.0	80	67 - 127
Dibromochloromethane	19.8	20.0	99	78 - 133
Dichlorodifluoromethane (CFC 12)	16.6	20.0	83	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 - PED TR0272
Sample Matrix: Water

Service Request: R1103657
Date Analyzed: 7/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252203

Lab Control Sample
RQ1106506-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.5	20.0	92	75 - 125
Ethylbenzene	16.5	20.0	82	78 - 123
Isopropylbenzene (Cumene)	19.2	20.0	96	73 - 133
Methyl Acetate	19.6	20.0	98	57 - 157
Methyl tert-Butyl Ether	19.4	20.0	97	75 - 126
Methylcyclohexane	16.5	20.0	83	64 - 133
Styrene	18.7	20.0	93	80 - 132
Tetrachloroethene (PCE)	16.1	20.0	80	72 - 131
Toluene	17.4	20.0	87	78 - 122
Trichloroethene (TCE)	16.8	20.0	84	74 - 127
Trichlorofluoromethane (CFC 11)	15.6	20.0	78	71 - 139
Vinyl Chloride	17.1	20.0	85	71 - 136
cis-1,2-Dichloroethene	17.9	20.0	90	78 - 122
cis-1,3-Dichloropropene	18.7	20.0	94	77 - 125
m,p-Xylenes	36.1	40.0	90	79 - 126
n-Butyl Acetate	18.9	20.0	95	54 - 127
o-Xylene	17.6	20.0	88	79 - 126
trans-1,2-Dichloroethene	16.3	20.0	82	75 - 121
trans-1,3-Dichloropropene	19.0	20.0	95	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services™ CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

1 Mustard Street, Suite 250, Rochester, NY 14609 | 585.288.5380 | 800.695.7222 | 585.288.8475 (fax) PAGE 1 OF 1

Project Name: LC34 - PED	Project Number: TR0272
Project Manager: CORY REPTA	Report CC:
Company/Address: GEOSYNTEC (GUELPH)	
Phone #	E-mail: crepta@geosyntec.com
Sampler's Signature:	Sampler's Printed Name: JOSEPH BARTLETT

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1C2 | 1C2 | 1C2

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 C (MBA)	Br	+	REMARKS/ ALTERNATE DESCRIPTION
BATCH 112 - 20110627	-001	6/27/11	1000	W	4	X	X	X	
BATCH 117 - 20110627	-002	6/27/11	1110	W	4	X	X	X	
BATCH 127 - 20110627	-003	6/27/11	1315	W	3	X	X		
BATCH 134 - 20110627	-004	6/27/11	1450	W	4	X	X		
BATCH 136 - 20110628	-005	6/28/11	0900	W	4	X	X	X	
BATCH 144 - 20110628	-006	6/28/11	1040	W	4	X	X	X	
BATCH 152 - 20110628	-007	6/28/11	1237	W	4	X	X		

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other 1C2

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: FL

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
X Standard

REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with
Edata X Yes ____

INVOICE INFORMATION
PO #:
BILL TO:

R1103657
GeoSyntec Consultants
LC34 - PED TR0272

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature:	Signature: FEDEX	Signature	Signature:	Signature	Signature
Printed Name: J. Bartlett	Printed Name	Printed Name	Printed Name: B Doyle	Printed Name	Printed Name
Firm: Geosyntec	Firm	Firm	Firm	Firm	Firm
Date/Time: 6/29/11	Date/Time	Date/Time	Date/Time: 6/30/11 0933	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return To Originator

SCOC Rev. 10/2010

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1103657 3D 6/30/11

Cooler received on 6/30/11 by: BD COURIER: CAS UPS (FEDEX) (VELOCITY) CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO N/A
5.	Were (Ice) or Ice packs present?	(YES)	NO
6.	Where did the bottles originate?		(CAS/ROC,) CLIENT
7.	Temperature of cooler(s) upon receipt:	3.0°	

Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 6/30 @ 0941

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 6/30/11

Cooler Breakdown: Date: 6/30/11 Time: 1143 by: AHH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO

4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: O-319-005, 053011-2V

Other Comments: # lvial for loc. BATCH 127-20110627

PC Secondary Review: KB 7/29/11

*significant air bubbles: VOA > 5-6 mm : WC > 1" in diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

July 25, 2011 Service Request No: R1103705

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34-PED TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on July 2, 2011. For your reference, these analyses have been assigned our service request number **R1103705**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 134. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1103705
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	7/1/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Eighteen (18) water samples were collected by the client on 6/30/11 and were received for analysis at Columbia Analytical Services on 7/1/11 via a national courier. Some samples/analyses were placed on hold as per instructions on a table included in an email from the client: LC34-DPT328-051.0-20110630 (R1103705-004) VOC's only, LC34-DPT329-030.0-20110630 (R1103705-005) all analytes, LC34-DPT329-045.0-20110630 (R1103705-007) VOC's only, LC34-DPT329-051.0-20110630 (R1103705-008) all parameters, LC34-DPT330-010.0-20110630 (R1103705-009), LC34-DPT330-030.0-20110630 (R1103705-010) all parameters, LC34-DPT331-016.0-20110630 (R1103705-014) Iodide and VOC's, and LC34-DPT331-030.0-20110630 (R1103705-015) VOC's only. A revised Chain of custody was also sent via email to add sample LC34-DPT328-057.0-20110630 (R1103705-018). All chains are included in the report. The samples were received at a cooler temperature of 2.1°C within the guidelines of 0-6°C.

Volatile Organic Compounds

Nine (9) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except the following: The CCV standard exceeded 20% Difference criteria for 1,2-Dichloroethane, 1,1,2,2-Tetrachloroethane, and 1,2-Dibromo,3-chloropropane were not met in the CCV from 7/6/11. The compounds 1,1,2,2-Tetrachloroethane and 1,2-Dibromo,3-chloropropane were not met in the CCV from 7/7/11. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (RSK) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All samples were analyzed within 7 days from collection, the holding time for unpreserved vials which were to be used for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burdick **Date** 7/26/11

Inorganic Parameters

Fourteen (14) water samples were analyzed for Bromide and thirteen (13) samples were analyzed for Iodide by IC method 300.0.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burnden **Date** 7/26/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1103705

Lab ID	Client ID
R1103705-001	LC34-DPT328-030.0-20110630
R1103705-002	LC34-DPT328-039.0-20110630
R1103705-003	LC34-DPT328-045.0-20110630
R1103705-004	LC34-DPT328-051.0-20110630
R1103705-006	LC34-DPT329-039.0-20110630
R1103705-007	LC34-DPT329-045.0-20110630
R1103705-011	LC34-DPT330-039.0-20110630
R1103705-012	LC34-DPT330-045.0-20110630
R1103705-013	LC34-DPT330-051.0-20110630
R1103705-014	LC34-DPT331-016.0-20110630
R1103705-015	LC34-DPT331-030.0-20110630
R1103705-016	LC34-DPT331-039.0-20110630
R1103705-017	LC34-DPT331-045.0-20110630
R1103705-018	LC34-DPT328-057.0-20110630

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0736
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-030.0-20110630		
Lab Code:	R1103705-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	7/6/11 06:04	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 22:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0736
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-030.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	120	500	NA	7/6/11 22:26		252541	
1,1,2,2-Tetrachloroethane	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
1,1,2-Trichloroethane	2500	U	2500	120	500	NA	7/6/11 22:26		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	160	500	NA	7/6/11 22:26		252541	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	500	NA	7/6/11 22:26		252541	
1,2,4-Trichlorobenzene	2500	U	2500	130	500	NA	7/6/11 22:26		252541	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	500	NA	7/6/11 22:26		252541	
1,2-Dibromoethane	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
1,2-Dichlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
1,2-Dichloroethane	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
1,2-Dichloropropane	2500	U	2500	140	500	NA	7/6/11 22:26		252541	
1,3-Dichlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
1,4-Dichlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
n-Butanol	25000	U	25000		500	NA	7/6/11 22:26		252541	
2-Butanone (MEK)	5000	U	5000	260	500	NA	7/6/11 22:26		252541	
2-Hexanone	5000	U	5000	180	500	NA	7/6/11 22:26		252541	
4-Methyl-2-pentanone	5000	U	5000	140	500	NA	7/6/11 22:26		252541	
Acetone	10000	U	10000	490	500	NA	7/6/11 22:26		252541	
Benzene	2500	U	2500	110	500	NA	7/6/11 22:26		252541	
Bromodichloromethane	**170**	J	2500	100	500	NA	7/6/11 22:26		252541	
Bromoform	2500	U	2500	140	500	NA	7/6/11 22:26		252541	
Bromomethane	2500	U	2500	160	500	NA	7/6/11 22:26		252541	
Carbon Disulfide	5000	U	5000	100	500	NA	7/6/11 22:26		252541	
Carbon Tetrachloride	2500	U	2500	140	500	NA	7/6/11 22:26		252541	
Chlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Chloroethane	2500	U	2500	160	500	NA	7/6/11 22:26		252541	
Chloroform	**780**	J	2500	110	500	NA	7/6/11 22:26		252541	
Chloromethane	2500	U	2500	120	500	NA	7/6/11 22:26		252541	
Cyclohexane	5000	U	5000	120	500	NA	7/6/11 22:26		252541	
Dibromochloromethane	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	500	NA	7/6/11 22:26		252541	
Dichloromethane	2500	U	2500	110	500	NA	7/6/11 22:26		252541	
Ethylbenzene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Isopropylbenzene (Cumene)	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Methyl Acetate	5000	U	5000	120	500	NA	7/6/11 22:26		252541	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0736
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-030.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Methylcyclohexane	5000	U	5000	130	500	NA	7/6/11 22:26		252541	
Styrene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Tetrachloroethene (PCE)	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Toluene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Trichloroethene (TCE)	**3800**		2500	120	500	NA	7/6/11 22:26		252541	
Trichlorofluoromethane (CFC 11)	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
Vinyl Chloride	**250**	J	2500	120	500	NA	7/6/11 22:26		252541	
cis-1,2-Dichloroethene	**48000**		2500	100	500	NA	7/6/11 22:26		252541	
cis-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
m,p-Xylenes	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
n-Butyl Acetate	2500	U	2500	110	500	NA	7/6/11 22:26		252541	
o-Xylene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	
trans-1,2-Dichloroethene	**440**	J	2500	100	500	NA	7/6/11 22:26		252541	
trans-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/6/11 22:26		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	7/6/11 22:26	
Dibromofluoromethane	107	89-119	7/6/11 22:26	
Toluene-d8	94	87-121	7/6/11 22:26	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0753
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-039.0-20110630		
Lab Code:	R1103705-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.0**		mg/L	1.0	10	NA	7/6/11 11:41	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 22:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0753
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	120	500	NA	7/6/11 22:53		252541	
1,1,2,2-Tetrachloroethane	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
1,1,2-Trichloroethane	2500	U	2500	120	500	NA	7/6/11 22:53		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	160	500	NA	7/6/11 22:53		252541	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	500	NA	7/6/11 22:53		252541	
1,2,4-Trichlorobenzene	2500	U	2500	130	500	NA	7/6/11 22:53		252541	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	500	NA	7/6/11 22:53		252541	
1,2-Dibromoethane	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
1,2-Dichlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
1,2-Dichloroethane	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
1,2-Dichloropropane	2500	U	2500	140	500	NA	7/6/11 22:53		252541	
1,3-Dichlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
1,4-Dichlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
n-Butanol	25000	U	25000		500	NA	7/6/11 22:53		252541	
2-Butanone (MEK)	5000	U	5000	260	500	NA	7/6/11 22:53		252541	
2-Hexanone	5000	U	5000	180	500	NA	7/6/11 22:53		252541	
4-Methyl-2-pentanone	5000	U	5000	140	500	NA	7/6/11 22:53		252541	
Acetone	10000	U	10000	490	500	NA	7/6/11 22:53		252541	
Benzene	2500	U	2500	110	500	NA	7/6/11 22:53		252541	
Bromodichloromethane	**150**	J	2500	100	500	NA	7/6/11 22:53		252541	
Bromoform	2500	U	2500	140	500	NA	7/6/11 22:53		252541	
Bromomethane	2500	U	2500	160	500	NA	7/6/11 22:53		252541	
Carbon Disulfide	5000	U	5000	100	500	NA	7/6/11 22:53		252541	
Carbon Tetrachloride	2500	U	2500	140	500	NA	7/6/11 22:53		252541	
Chlorobenzene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Chloroethane	2500	U	2500	160	500	NA	7/6/11 22:53		252541	
Chloroform	**750**	J	2500	110	500	NA	7/6/11 22:53		252541	
Chloromethane	2500	U	2500	120	500	NA	7/6/11 22:53		252541	
Cyclohexane	5000	U	5000	120	500	NA	7/6/11 22:53		252541	
Dibromochloromethane	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	500	NA	7/6/11 22:53		252541	
Dichloromethane	2500	U	2500	110	500	NA	7/6/11 22:53		252541	
Ethylbenzene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Isopropylbenzene (Cumene)	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Methyl Acetate	5000	U	5000	120	500	NA	7/6/11 22:53		252541	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0753
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Methylcyclohexane	5000	U	5000	130	500	NA	7/6/11 22:53		252541	
Styrene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Tetrachloroethene (PCE)	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Toluene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Trichloroethene (TCE)	**1200**	J	2500	120	500	NA	7/6/11 22:53		252541	
Trichlorofluoromethane (CFC 11)	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
Vinyl Chloride	**2000**	J	2500	120	500	NA	7/6/11 22:53		252541	
cis-1,2-Dichloroethene	**56000**		2500	100	500	NA	7/6/11 22:53		252541	
cis-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
m,p-Xylenes	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
n-Butyl Acetate	**15000**		2500	110	500	NA	7/6/11 22:53		252541	
o-Xylene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	
trans-1,2-Dichloroethene	**260**	J	2500	100	500	NA	7/6/11 22:53		252541	
trans-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/6/11 22:53		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	7/6/11 22:53	
Dibromofluoromethane	108	89-119	7/6/11 22:53	
Toluene-d8	93	87-121	7/6/11 22:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0810
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-045.0-20110630		
Lab Code:	R1103705-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.9**		mg/L	1.0	10	NA	7/6/11 09:18	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 22:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0810
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-045.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	7/6/11 23:20		252541	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	7/6/11 23:20		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	1300	U	1300	78	250	NA	7/6/11 23:20		252541	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	7/6/11 23:20		252541	
1,2,4-Trichlorobenzene	1300	U	1300	65	250	NA	7/6/11 23:20		252541	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	7/6/11 23:20		252541	
1,2-Dibromoethane	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
1,2-Dichloroethane	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
1,2-Dichloropropane	1300	U	1300	70	250	NA	7/6/11 23:20		252541	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
n-Butanol	13000	U	13000		250	NA	7/6/11 23:20		252541	
2-Butanone (MEK)	2500	U	2500	130	250	NA	7/6/11 23:20		252541	
2-Hexanone	2500	U	2500	88	250	NA	7/6/11 23:20		252541	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	7/6/11 23:20		252541	
Acetone	5000	U	5000	250	250	NA	7/6/11 23:20		252541	
Benzene	1300	U	1300	53	250	NA	7/6/11 23:20		252541	
Bromodichloromethane	**100**	J	1300	50	250	NA	7/6/11 23:20		252541	
Bromoform	1300	U	1300	68	250	NA	7/6/11 23:20		252541	
Bromomethane	1300	U	1300	78	250	NA	7/6/11 23:20		252541	
Carbon Disulfide	2500	U	2500	50	250	NA	7/6/11 23:20		252541	
Carbon Tetrachloride	1300	U	1300	68	250	NA	7/6/11 23:20		252541	
Chlorobenzene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Chloroethane	1300	U	1300	78	250	NA	7/6/11 23:20		252541	
Chloroform	**410**	J	1300	55	250	NA	7/6/11 23:20		252541	
Chloromethane	1300	U	1300	60	250	NA	7/6/11 23:20		252541	
Cyclohexane	2500	U	2500	60	250	NA	7/6/11 23:20		252541	
Dibromochloromethane	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	7/6/11 23:20		252541	
Dichloromethane	1300	U	1300	55	250	NA	7/6/11 23:20		252541	
Ethylbenzene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Methyl Acetate	2500	U	2500	58	250	NA	7/6/11 23:20		252541	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0810
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-045.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Methylcyclohexane	2500	U	2500	63	250	NA	7/6/11 23:20		252541	
Styrene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Toluene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
Trichloroethene (TCE)	**1900**		1300	58	250	NA	7/6/11 23:20		252541	
Trichlorofluoromethane (CFC 11)	**68**	J	1300	50	250	NA	7/6/11 23:20		252541	
Vinyl Chloride	1300	U	1300	58	250	NA	7/6/11 23:20		252541	
cis-1,2-Dichloroethene	**35000**		1300	50	250	NA	7/6/11 23:20		252541	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
m,p-Xylenes	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
n-Butyl Acetate	**55**	J	1300	53	250	NA	7/6/11 23:20		252541	
o-Xylene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	
trans-1,2-Dichloroethene	**190**	J	1300	50	250	NA	7/6/11 23:20		252541	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	7/6/11 23:20		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	7/6/11 23:20	
Dibromofluoromethane	111	89-119	7/6/11 23:20	
Toluene-d8	96	87-121	7/6/11 23:20	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0827
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-051.0-20110630		
Lab Code:	R1103705-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.8**		mg/L	1.0	10	NA	7/6/11 11:55	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 22:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0955
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT329-039.0-20110630		
Lab Code:	R1103705-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**49.7**		mg/L	1.0	10	NA	7/6/11 12:09	
Iodide	300.0	**25**		mg/L	20	100	NA	7/12/11 16:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0955
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT329-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50000	U	50000	2300	10000	NA	7/6/11 23:47		252541	
1,1,2,2-Tetrachloroethane	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
1,1,2-Trichloroethane	50000	U	50000	2300	10000	NA	7/6/11 23:47		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	50000	U	50000	3100	10000	NA	7/6/11 23:47		252541	
1,1-Dichloroethane (1,1-DCA)	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
1,1-Dichloroethene (1,1-DCE)	50000	U	50000	2900	10000	NA	7/6/11 23:47		252541	
1,2,4-Trichlorobenzene	50000	U	50000	2600	10000	NA	7/6/11 23:47		252541	
1,2-Dibromo-3-chloropropane (DBCP)	50000	U	50000	3800	10000	NA	7/6/11 23:47		252541	
1,2-Dibromoethane	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
1,2-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
1,2-Dichloroethane	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
1,2-Dichloropropane	50000	U	50000	2900	10000	NA	7/6/11 23:47		252541	
1,3-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
1,4-Dichlorobenzene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
n-Butanol	500000	U	500000		10000	NA	7/6/11 23:47		252541	
2-Butanone (MEK)	100000	U	100000	5100	10000	NA	7/6/11 23:47		252541	
2-Hexanone	100000	U	100000	3500	10000	NA	7/6/11 23:47		252541	
4-Methyl-2-pentanone	100000	U	100000	2700	10000	NA	7/6/11 23:47		252541	
Acetone	200000	U	200000	9800	10000	NA	7/6/11 23:47		252541	
Benzene	50000	U	50000	2100	10000	NA	7/6/11 23:47		252541	
Bromodichloromethane	**2300**	J	50000	2000	10000	NA	7/6/11 23:47		252541	
Bromoform	50000	U	50000	2700	10000	NA	7/6/11 23:47		252541	
Bromomethane	50000	U	50000	3100	10000	NA	7/6/11 23:47		252541	
Carbon Disulfide	100000	U	100000	2000	10000	NA	7/6/11 23:47		252541	
Carbon Tetrachloride	50000	U	50000	2700	10000	NA	7/6/11 23:47		252541	
Chlorobenzene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Chloroethane	50000	U	50000	3100	10000	NA	7/6/11 23:47		252541	
Chloroform	**11000**	J	50000	2200	10000	NA	7/6/11 23:47		252541	
Chloromethane	50000	U	50000	2400	10000	NA	7/6/11 23:47		252541	
Cyclohexane	100000	U	100000	2400	10000	NA	7/6/11 23:47		252541	
Dibromochloromethane	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Dichlorodifluoromethane (CFC 12)	50000	U	50000	5700	10000	NA	7/6/11 23:47		252541	
Dichloromethane	50000	U	50000	2200	10000	NA	7/6/11 23:47		252541	
Ethylbenzene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Isopropylbenzene (Cumene)	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Methyl Acetate	100000	U	100000	2300	10000	NA	7/6/11 23:47		252541	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0955
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT329-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Methylcyclohexane	100000	U	100000	2500	10000	NA	7/6/11 23:47		252541	
Styrene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Tetrachloroethene (PCE)	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Toluene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Trichloroethene (TCE)	**10000**	J	50000	2300	10000	NA	7/6/11 23:47		252541	
Trichlorofluoromethane (CFC 11)	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
Vinyl Chloride	50000	U	50000	2300	10000	NA	7/6/11 23:47		252541	
cis-1,2-Dichloroethene	**14000**	J	50000	2000	10000	NA	7/6/11 23:47		252541	
cis-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
m,p-Xylenes	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
n-Butyl Acetate	**1100000**		50000	2100	10000	NA	7/6/11 23:47		252541	
o-Xylene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
trans-1,2-Dichloroethene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	
trans-1,3-Dichloropropene	50000	U	50000	2000	10000	NA	7/6/11 23:47		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	7/6/11 23:47	
Dibromofluoromethane	107	89-119	7/6/11 23:47	
Toluene-d8	96	87-121	7/6/11 23:47	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1012
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT329-045.0-20110630		
Lab Code:	R1103705-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**45.8**		mg/L	1.0	10	NA	7/6/11 08:36	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 23:18	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1147
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-039.0-20110630		
Lab Code:	R1103705-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.5**		mg/L	1.0	10	NA	7/6/11 08:50	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 23:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1147
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	120	500	NA	7/7/11 00:14		252541	
1,1,2,2-Tetrachloroethane	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
1,1,2-Trichloroethane	2500	U	2500	120	500	NA	7/7/11 00:14		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	160	500	NA	7/7/11 00:14		252541	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	500	NA	7/7/11 00:14		252541	
1,2,4-Trichlorobenzene	2500	U	2500	130	500	NA	7/7/11 00:14		252541	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	500	NA	7/7/11 00:14		252541	
1,2-Dibromoethane	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
1,2-Dichlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
1,2-Dichloroethane	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
1,2-Dichloropropane	2500	U	2500	140	500	NA	7/7/11 00:14		252541	
1,3-Dichlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
1,4-Dichlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
n-Butanol	25000	U	25000		500	NA	7/7/11 00:14		252541	
2-Butanone (MEK)	5000	U	5000	260	500	NA	7/7/11 00:14		252541	
2-Hexanone	5000	U	5000	180	500	NA	7/7/11 00:14		252541	
4-Methyl-2-pentanone	5000	U	5000	140	500	NA	7/7/11 00:14		252541	
Acetone	10000	U	10000	490	500	NA	7/7/11 00:14		252541	
Benzene	2500	U	2500	110	500	NA	7/7/11 00:14		252541	
Bromodichloromethane	**190**	J	2500	100	500	NA	7/7/11 00:14		252541	
Bromoform	2500	U	2500	140	500	NA	7/7/11 00:14		252541	
Bromomethane	2500	U	2500	160	500	NA	7/7/11 00:14		252541	
Carbon Disulfide	5000	U	5000	100	500	NA	7/7/11 00:14		252541	
Carbon Tetrachloride	2500	U	2500	140	500	NA	7/7/11 00:14		252541	
Chlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Chloroethane	2500	U	2500	160	500	NA	7/7/11 00:14		252541	
Chloroform	**660**	J	2500	110	500	NA	7/7/11 00:14		252541	
Chloromethane	2500	U	2500	120	500	NA	7/7/11 00:14		252541	
Cyclohexane	5000	U	5000	120	500	NA	7/7/11 00:14		252541	
Dibromochloromethane	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	500	NA	7/7/11 00:14		252541	
Dichloromethane	2500	U	2500	110	500	NA	7/7/11 00:14		252541	
Ethylbenzene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Isopropylbenzene (Cumene)	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Methyl Acetate	5000	U	5000	120	500	NA	7/7/11 00:14		252541	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1147
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Methylcyclohexane	5000	U	5000	130	500	NA	7/7/11 00:14		252541	
Styrene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Tetrachloroethene (PCE)	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Toluene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Trichloroethene (TCE)	**530**	J	2500	120	500	NA	7/7/11 00:14		252541	
Trichlorofluoromethane (CFC 11)	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
Vinyl Chloride	**2500**		2500	120	500	NA	7/7/11 00:14		252541	
cis-1,2-Dichloroethene	**59000**		2500	100	500	NA	7/7/11 00:14		252541	
cis-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
m,p-Xylenes	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
n-Butyl Acetate	**15000**		2500	110	500	NA	7/7/11 00:14		252541	
o-Xylene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	
trans-1,2-Dichloroethene	**340**	J	2500	100	500	NA	7/7/11 00:14		252541	
trans-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/7/11 00:14		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/7/11 00:14	
Dibromofluoromethane	111	89-119	7/7/11 00:14	
Toluene-d8	99	87-121	7/7/11 00:14	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1244
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-045.0-20110630		
Lab Code:	R1103705-012	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**27.9**		mg/L	1.0	10	NA	7/6/11 09:04	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 23:35	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1244
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-045.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	120	500	NA	7/7/11 00:41		252541	
1,1,2,2-Tetrachloroethane	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
1,1,2-Trichloroethane	2500	U	2500	120	500	NA	7/7/11 00:41		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	160	500	NA	7/7/11 00:41		252541	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	500	NA	7/7/11 00:41		252541	
1,2,4-Trichlorobenzene	2500	U	2500	130	500	NA	7/7/11 00:41		252541	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	500	NA	7/7/11 00:41		252541	
1,2-Dibromoethane	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
1,2-Dichlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
1,2-Dichloroethane	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
1,2-Dichloropropane	2500	U	2500	140	500	NA	7/7/11 00:41		252541	
1,3-Dichlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
1,4-Dichlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
n-Butanol	**75000**		5300	5300	500	NA	7/7/11 00:41		252541	
2-Butanone (MEK)	5000	U	5000	260	500	NA	7/7/11 00:41		252541	
2-Hexanone	5000	U	5000	180	500	NA	7/7/11 00:41		252541	
4-Methyl-2-pentanone	5000	U	5000	140	500	NA	7/7/11 00:41		252541	
Acetone	10000	U	10000	490	500	NA	7/7/11 00:41		252541	
Benzene	2500	U	2500	110	500	NA	7/7/11 00:41		252541	
Bromodichloromethane	**170**	J	2500	100	500	NA	7/7/11 00:41		252541	
Bromoform	2500	U	2500	140	500	NA	7/7/11 00:41		252541	
Bromomethane	2500	U	2500	160	500	NA	7/7/11 00:41		252541	
Carbon Disulfide	5000	U	5000	100	500	NA	7/7/11 00:41		252541	
Carbon Tetrachloride	2500	U	2500	140	500	NA	7/7/11 00:41		252541	
Chlorobenzene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Chloroethane	2500	U	2500	160	500	NA	7/7/11 00:41		252541	
Chloroform	**660**	J	2500	110	500	NA	7/7/11 00:41		252541	
Chloromethane	2500	U	2500	120	500	NA	7/7/11 00:41		252541	
Cyclohexane	5000	U	5000	120	500	NA	7/7/11 00:41		252541	
Dibromochloromethane	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	500	NA	7/7/11 00:41		252541	
Dichloromethane	2500	U	2500	110	500	NA	7/7/11 00:41		252541	
Ethylbenzene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Isopropylbenzene (Cumene)	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Methyl Acetate	5000	U	5000	120	500	NA	7/7/11 00:41		252541	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1244
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-045.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analysis Lot: 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Methylcyclohexane	5000	U	5000	130	500	NA	7/7/11 00:41		252541	
Styrene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Tetrachloroethene (PCE)	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Toluene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Trichloroethene (TCE)	**3500**		2500	120	500	NA	7/7/11 00:41		252541	
Trichlorofluoromethane (CFC 11)	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
Vinyl Chloride	2500	U	2500	120	500	NA	7/7/11 00:41		252541	
cis-1,2-Dichloroethene	**20000**		2500	100	500	NA	7/7/11 00:41		252541	
cis-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
m,p-Xylenes	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
n-Butyl Acetate	**690000**	D	25000	1100	5000	NA	7/7/11 14:07		252665	
o-Xylene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	
trans-1,2-Dichloroethene	**130**	J	2500	100	500	NA	7/7/11 00:41		252541	
trans-1,3-Dichloropropene	2500	U	2500	100	500	NA	7/7/11 00:41		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	7/7/11 00:41	
Dibromofluoromethane	109	89-119	7/7/11 00:41	
Toluene-d8	97	87-121	7/7/11 00:41	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1302
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-051.0-20110630		
Lab Code:	R1103705-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**4.2**		mg/L	1.0	10	NA	7/6/11 10:01	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/12/11 23:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1302
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-051.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	7/7/11 01:09		252541	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	7/7/11 01:09		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	1300	U	1300	78	250	NA	7/7/11 01:09		252541	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	7/7/11 01:09		252541	
1,2,4-Trichlorobenzene	1300	U	1300	65	250	NA	7/7/11 01:09		252541	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	7/7/11 01:09		252541	
1,2-Dibromoethane	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
1,2-Dichloroethane	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
1,2-Dichloropropane	1300	U	1300	70	250	NA	7/7/11 01:09		252541	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
n-Butanol	**19000**		2700	2700	250	NA	7/7/11 01:09		252541	
2-Butanone (MEK)	2500	U	2500	130	250	NA	7/7/11 01:09		252541	
2-Hexanone	2500	U	2500	88	250	NA	7/7/11 01:09		252541	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	7/7/11 01:09		252541	
Acetone	5000	U	5000	250	250	NA	7/7/11 01:09		252541	
Benzene	1300	U	1300	53	250	NA	7/7/11 01:09		252541	
Bromodichloromethane	**65**	J	1300	50	250	NA	7/7/11 01:09		252541	
Bromoform	1300	U	1300	68	250	NA	7/7/11 01:09		252541	
Bromomethane	1300	U	1300	78	250	NA	7/7/11 01:09		252541	
Carbon Disulfide	2500	U	2500	50	250	NA	7/7/11 01:09		252541	
Carbon Tetrachloride	1300	U	1300	68	250	NA	7/7/11 01:09		252541	
Chlorobenzene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Chloroethane	1300	U	1300	78	250	NA	7/7/11 01:09		252541	
Chloroform	**400**	J	1300	55	250	NA	7/7/11 01:09		252541	
Chloromethane	1300	U	1300	60	250	NA	7/7/11 01:09		252541	
Cyclohexane	2500	U	2500	60	250	NA	7/7/11 01:09		252541	
Dibromochloromethane	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	7/7/11 01:09		252541	
Dichloromethane	1300	U	1300	55	250	NA	7/7/11 01:09		252541	
Ethylbenzene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Methyl Acetate	2500	U	2500	58	250	NA	7/7/11 01:09		252541	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1302
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT330-051.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analysis Lot: 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Methylcyclohexane	2500	U	2500	63	250	NA	7/7/11 01:09		252541	
Styrene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Toluene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Trichloroethene (TCE)	1300	U	1300	58	250	NA	7/7/11 01:09		252541	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
Vinyl Chloride	1300	U	1300	58	250	NA	7/7/11 01:09		252541	
cis-1,2-Dichloroethene	**510**	J	1300	50	250	NA	7/7/11 01:09		252541	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
m,p-Xylenes	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
n-Butyl Acetate	**76000**	D	2500	110	500	NA	7/7/11 14:34		252665	
o-Xylene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
trans-1,2-Dichloroethene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	7/7/11 01:09		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	7/7/11 01:09	
Dibromofluoromethane	111	89-119	7/7/11 01:09	
Toluene-d8	98	87-121	7/7/11 01:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1348
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-016.0-20110630		
Lab Code:	R1103705-014	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	7/6/11 12:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1401
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-030.0-20110630		
Lab Code:	R1103705-015	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.8**		mg/L	1.0	10	NA	7/6/11 10:15	
Iodide	300.0	**2.8**		mg/L	2.0	10	NA	7/12/11 23:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1416
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-039.0-20110630		
Lab Code:	R1103705-016	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**6.2**		mg/L	1.0	10	NA	7/6/11 10:30	
Iodide	300.0	**3.6**		mg/L	2.0	10	NA	7/13/11 00:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1416
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252665

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	13000	U	13000	580	2500	NA	7/7/11 15:02		252665	
1,1,2,2-Tetrachloroethane	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
1,1,2-Trichloroethane	13000	U	13000	580	2500	NA	7/7/11 15:02		252665	
1,1,2-Trichloro-1,2,2-trifluoroethane	**50000**		13000	780	2500	NA	7/7/11 15:02		252665	
1,1-Dichloroethane (1,1-DCA)	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
1,1-Dichloroethene (1,1-DCE)	13000	U	13000	730	2500	NA	7/7/11 15:02		252665	
1,2,4-Trichlorobenzene	13000	U	13000	650	2500	NA	7/7/11 15:02		252665	
1,2-Dibromo-3-chloropropane (DBCP)	13000	U	13000	950	2500	NA	7/7/11 15:02		252665	
1,2-Dibromoethane	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
1,2-Dichlorobenzene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
1,2-Dichloroethane	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
1,2-Dichloropropane	13000	U	13000	710	2500	NA	7/7/11 15:02		252665	
1,3-Dichlorobenzene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
1,4-Dichlorobenzene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
n-Butanol	27000	U	27000	27000	2500	NA	7/7/11 15:02		252665	
2-Butanone (MEK)	25000	U	25000	1300	2500	NA	7/7/11 15:02		252665	
2-Hexanone	25000	U	25000	880	2500	NA	7/7/11 15:02		252665	
4-Methyl-2-pentanone	25000	U	25000	680	2500	NA	7/7/11 15:02		252665	
Acetone	50000	U	50000	2500	2500	NA	7/7/11 15:02		252665	
Benzene	13000	U	13000	530	2500	NA	7/7/11 15:02		252665	
Bromodichloromethane	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Bromoform	13000	U	13000	680	2500	NA	7/7/11 15:02		252665	
Bromomethane	13000	U	13000	780	2500	NA	7/7/11 15:02		252665	
Carbon Disulfide	25000	U	25000	500	2500	NA	7/7/11 15:02		252665	
Carbon Tetrachloride	13000	U	13000	680	2500	NA	7/7/11 15:02		252665	
Chlorobenzene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Chloroethane	13000	U	13000	780	2500	NA	7/7/11 15:02		252665	
Chloroform	13000	U	13000	550	2500	NA	7/7/11 15:02		252665	
Chloromethane	13000	U	13000	600	2500	NA	7/7/11 15:02		252665	
Cyclohexane	25000	U	25000	600	2500	NA	7/7/11 15:02		252665	
Dibromochloromethane	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Dichlorodifluoromethane (CFC 12)	13000	U	13000	1500	2500	NA	7/7/11 15:02		252665	
Dichloromethane	13000	U	13000	550	2500	NA	7/7/11 15:02		252665	
Ethylbenzene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Isopropylbenzene (Cumene)	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Methyl Acetate	25000	U	25000	580	2500	NA	7/7/11 15:02		252665	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1416
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-039.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252665

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Methylcyclohexane	25000	U	25000	630	2500	NA	7/7/11 15:02		252665	
Styrene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Tetrachloroethene (PCE)	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Toluene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Trichloroethene (TCE)	**76000**		13000	580	2500	NA	7/7/11 15:02		252665	
Trichlorofluoromethane (CFC 11)	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
Vinyl Chloride	13000	U	13000	580	2500	NA	7/7/11 15:02		252665	
cis-1,2-Dichloroethene	**20000**		13000	500	2500	NA	7/7/11 15:02		252665	
cis-1,3-Dichloropropene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
m,p-Xylenes	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
n-Butyl Acetate	**360000**		13000	530	2500	NA	7/7/11 15:02		252665	
o-Xylene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
trans-1,2-Dichloroethene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	
trans-1,3-Dichloropropene	13000	U	13000	500	2500	NA	7/7/11 15:02		252665	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	7/7/11 15:02	
Dibromofluoromethane	106	89-119	7/7/11 15:02	
Toluene-d8	94	87-121	7/7/11 15:02	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1433
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-045.0-20110630		
Lab Code:	R1103705-017	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.7		mg/L	1.0	10	NA	7/6/11 11:12	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 00:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1433
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-045.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	7/7/11 02:03		252541	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	7/7/11 02:03		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	**56000**		5000	310	1000	NA	7/7/11 02:03		252541	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	7/7/11 02:03		252541	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	7/7/11 02:03		252541	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	7/7/11 02:03		252541	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	7/7/11 02:03		252541	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
n-Butanol	50000	U	50000		1000	NA	7/7/11 02:03		252541	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	7/7/11 02:03		252541	
2-Hexanone	10000	U	10000	350	1000	NA	7/7/11 02:03		252541	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	7/7/11 02:03		252541	
Acetone	20000	U	20000	980	1000	NA	7/7/11 02:03		252541	
Benzene	5000	U	5000	210	1000	NA	7/7/11 02:03		252541	
Bromodichloromethane	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Bromoform	5000	U	5000	270	1000	NA	7/7/11 02:03		252541	
Bromomethane	5000	U	5000	310	1000	NA	7/7/11 02:03		252541	
Carbon Disulfide	10000	U	10000	200	1000	NA	7/7/11 02:03		252541	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	7/7/11 02:03		252541	
Chlorobenzene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Chloroethane	5000	U	5000	310	1000	NA	7/7/11 02:03		252541	
Chloroform	5000	U	5000	220	1000	NA	7/7/11 02:03		252541	
Chloromethane	5000	U	5000	240	1000	NA	7/7/11 02:03		252541	
Cyclohexane	10000	U	10000	240	1000	NA	7/7/11 02:03		252541	
Dibromochloromethane	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	7/7/11 02:03		252541	
Dichloromethane	5000	U	5000	220	1000	NA	7/7/11 02:03		252541	
Ethylbenzene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Methyl Acetate	10000	U	10000	230	1000	NA	7/7/11 02:03		252541	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 1433
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT331-045.0-20110630	**Units:**	µg/L
Lab Code:	R1103705-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Methylcyclohexane	10000	U	10000	250	1000	NA	7/7/11 02:03		252541	
Styrene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Toluene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Trichloroethene (TCE)	**180000**		5000	230	1000	NA	7/7/11 02:03		252541	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
Vinyl Chloride	5000	U	5000	230	1000	NA	7/7/11 02:03		252541	
cis-1,2-Dichloroethene	**3700**	J	5000	200	1000	NA	7/7/11 02:03		252541	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
m,p-Xylenes	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
n-Butyl Acetate	**820**	J	5000	210	1000	NA	7/7/11 02:03		252541	
o-Xylene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
trans-1,2-Dichloroethene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/7/11 02:03		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	7/7/11 02:03	
Dibromofluoromethane	110	89-119	7/7/11 02:03	
Toluene-d8	97	87-121	7/7/11 02:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	6/30/11 0849
Sample Matrix:	Water	**Date Received:**	7/ 2/11
Sample Name:	LC34-DPT328-057.0-20110630		
Lab Code:	R1103705-018	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.9**		mg/L	1.0	10	NA	7/6/11 11:27	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 00:18	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103705-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	7/6/11 01:34	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/12/11 13:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103705-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	7/6/11 08:07	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/12/11 21:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106543-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/6/11 21:59		252541	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/6/11 21:59		252541	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/6/11 21:59		252541	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/6/11 21:59		252541	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	7/6/11 21:59		252541	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/6/11 21:59		252541	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/6/11 21:59		252541	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
n-Butanol	50	U	50	11	1	NA	7/6/11 21:59		252541	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/6/11 21:59		252541	
2-Hexanone	10	U	10	0.35	1	NA	7/6/11 21:59		252541	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/6/11 21:59		252541	
Acetone	20	U	20	0.98	1	NA	7/6/11 21:59		252541	
Benzene	5.0	U	5.0	0.21	1	NA	7/6/11 21:59		252541	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Bromoform	5.0	U	5.0	0.27	1	NA	7/6/11 21:59		252541	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/6/11 21:59		252541	
Carbon Disulfide	10	U	10	0.20	1	NA	7/6/11 21:59		252541	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/6/11 21:59		252541	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/6/11 21:59		252541	
Chloroform	5.0	U	5.0	0.22	1	NA	7/6/11 21:59		252541	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/6/11 21:59		252541	
Cyclohexane	10	U	10	0.24	1	NA	7/6/11 21:59		252541	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/6/11 21:59		252541	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/6/11 21:59		252541	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Methyl Acetate	10	U	10	0.23	1	NA	7/6/11 21:59		252541	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106543-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252541

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Methylcyclohexane	10	U	10	0.25	1	NA	7/6/11 21:59		252541	
Styrene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Toluene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/6/11 21:59		252541	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/6/11 21:59		252541	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/6/11 21:59		252541	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/6/11 21:59		252541	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	7/6/11 21:59	
Dibromofluoromethane	114	89-119	7/6/11 21:59	
Toluene-d8	99	87-121	7/6/11 21:59	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106596-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252665

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/7/11 10:02		252665	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/7/11 10:02		252665	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/7/11 10:02		252665	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/7/11 10:02		252665	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	7/7/11 10:02		252665	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/7/11 10:02		252665	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/7/11 10:02		252665	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
n-Butanol	11	U	11	11	1	NA	7/7/11 10:02		252665	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/7/11 10:02		252665	
2-Hexanone	10	U	10	0.35	1	NA	7/7/11 10:02		252665	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/7/11 10:02		252665	
Acetone	20	U	20	0.98	1	NA	7/7/11 10:02		252665	
Benzene	5.0	U	5.0	0.21	1	NA	7/7/11 10:02		252665	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Bromoform	5.0	U	5.0	0.27	1	NA	7/7/11 10:02		252665	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/7/11 10:02		252665	
Carbon Disulfide	10	U	10	0.20	1	NA	7/7/11 10:02		252665	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/7/11 10:02		252665	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/7/11 10:02		252665	
Chloroform	5.0	U	5.0	0.22	1	NA	7/7/11 10:02		252665	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/7/11 10:02		252665	
Cyclohexane	10	U	10	0.24	1	NA	7/7/11 10:02		252665	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/7/11 10:02		252665	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/7/11 10:02		252665	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Methyl Acetate	10	U	10	0.23	1	NA	7/7/11 10:02		252665	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103705
Project:	LC34-PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106596-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 252665

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Methylcyclohexane	10	U	10	0.25	1	NA	7/7/11 10:02		252665	
Styrene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Toluene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/7/11 10:02		252665	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/7/11 10:02		252665	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/7/11 10:02		252665	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/7/11 10:02		252665	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	7/7/11 10:02	
Dibromofluoromethane	105	89-119	7/7/11 10:02	
Toluene-d8	96	87-121	7/7/11 10:02	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34-PED TR0272
Sample Matrix: Water

Service Request: R1103705
Date Analyzed: 7/ 6/11 - 7/12/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103705-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.05	1.00	105	90 - 110
Iodide	300.0	0.958	1.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34-PED TR0272
Sample Matrix: Water

Service Request: R1103705
Date Analyzed: 7/ 6/11 - 7/12/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103705-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.05	1.00	105	90 - 110
Iodide	300.0	0.966	1.00	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34-PED TR0272
Sample Matrix: Water

Service Request: R1103705
Date Analyzed: 7/ 6/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252541

Lab Control Sample
RQ1106543-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.9	20.0	100	72 - 128
1,1,2,2-Tetrachloroethane	15.7	20.0	79	72 - 131
1,1,2-Trichloroethane	18.5	20.0	93	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.6	20.0	83	71 - 134
1,1-Dichloroethane (1,1-DCA)	23.2	20.0	116	76 - 122
1,1-Dichloroethene (1,1-DCE)	17.1	20.0	85	72 - 129
1,2,4-Trichlorobenzene	19.3	20.0	97	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	15.7	20.0	79	62 - 131
1,2-Dibromoethane	18.6	20.0	93	78 - 125
1,2-Dichlorobenzene	20.2	20.0	101	79 - 124
1,2-Dichloroethane	24.5	20.0	122	78 - 126
1,2-Dichloropropane	20.8	20.0	104	80 - 123
1,3-Dichlorobenzene	20.3	20.0	101	78 - 124
1,4-Dichlorobenzene	20.2	20.0	101	78 - 123
n-Butanol	1060	1000	106	70 - 130
2-Butanone (MEK)	22.7	20.0	114	60 - 133
2-Hexanone	19.5	20.0	97	61 - 131
4-Methyl-2-pentanone	18.9	20.0	95	61 - 132
Acetone	22.3	20.0	111	59 - 140
Benzene	19.5	20.0	98	78 - 121
Bromodichloromethane	20.9	20.0	104	80 - 125
Bromoform	17.4	20.0	87	73 - 132
Bromomethane	17.2	20.0	86	57 - 144
Carbon Disulfide	18.8	20.0	94	59 - 138
Carbon Tetrachloride	22.2	20.0	111	69 - 135
Chlorobenzene	20.0	20.0	100	80 - 121
Chloroethane	20.4	20.0	102	71 - 130
Chloroform	21.0	20.0	105	78 - 125
Chloromethane	22.2	20.0	111	62 - 133
Cyclohexane	21.7	20.0	109	67 - 127
Dibromochloromethane	19.7	20.0	99	78 - 133
Dichlorodifluoromethane (CFC 12)	17.4	20.0	87	53 - 143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34-PED TR0272
Sample Matrix: Water

Service Request: R1103705
Date Analyzed: 7/ 6/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252541

Analyte Name	Lab Control Sample RQ1106543-04 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.1	20.0	91	75 - 125
Ethylbenzene	19.0	20.0	95	78 - 123
Isopropylbenzene (Cumene)	21.0	20.0	105	73 - 133
Methyl Acetate	22.6	20.0	113	57 - 157
Methyl tert-Butyl Ether	19.4	20.0	97	75 - 126
Methylcyclohexane	21.4	20.0	107	64 - 133
Styrene	19.1	20.0	96	80 - 132
Tetrachloroethene (PCE)	19.9	20.0	99	72 - 131
Toluene	18.6	20.0	93	78 - 122
Trichloroethene (TCE)	20.0	20.0	100	74 - 127
Trichlorofluoromethane (CFC 11)	23.8	20.0	119	71 - 139
Vinyl Chloride	22.5	20.0	112	71 - 136
cis-1,2-Dichloroethene	19.5	20.0	97	78 - 122
cis-1,3-Dichloropropene	18.0	20.0	90	77 - 125
m,p-Xylenes	40.2	40.0	100	79 - 126
n-Butyl Acetate	17.9	20.0	90	54 - 127
o-Xylene	19.4	20.0	97	79 - 126
trans-1,2-Dichloroethene	18.8	20.0	94	75 - 121
trans-1,3-Dichloropropene	16.2	20.0	81	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34-PED TR0272
Sample Matrix: Water

Service Request: R1103705
Date Analyzed: 7/ 7/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252665

Lab Control Sample
RQ1106596-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.2	20.0	96	72 - 128
1,1,2,2-Tetrachloroethane	16.2	20.0	81	72 - 131
1,1,2-Trichloroethane	17.3	20.0	86	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.4	20.0	77	68 - 136
1,1-Dichloroethane (1,1-DCA)	21.1	20.0	105	76 - 124
1,1-Dichloroethene (1,1-DCE)	16.0	20.0	80	72 - 129
1,2,4-Trichlorobenzene	19.2	20.0	96	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	14.9	20.0	74	62 - 131
1,2-Dibromoethane	18.7	20.0	93	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	24.6	20.0	123	73 - 127
1,2-Dichloropropane	20.4	20.0	102	80 - 123
1,3-Dichlorobenzene	19.2	20.0	96	78 - 124
1,4-Dichlorobenzene	19.4	20.0	97	78 - 123
2-Butanone (MEK)	23.1	20.0	115	60 - 133
2-Hexanone	19.1	20.0	95	61 - 131
4-Methyl-2-pentanone	19.1	20.0	95	61 - 132
Acetone	18.0	20.0	90	54 - 139
Benzene	18.2	20.0	91	78 - 121
Bromodichloromethane	20.4	20.0	102	80 - 125
Bromoform	17.4	20.0	87	68 - 130
Bromomethane	16.2	20.0	81	57 - 144
Carbon Disulfide	19.4	20.0	97	52 - 140
Carbon Tetrachloride	21.3	20.0	106	68 - 133
Chlorobenzene	19.1	20.0	95	80 - 121
Chloroethane	19.2	20.0	96	71 - 130
Chloroform	19.2	20.0	96	78 - 125
Chloromethane	20.9	20.0	105	61 - 138
Cyclohexane	21.4	20.0	107	57 - 126
Dibromochloromethane	19.3	20.0	96	78 - 133
Dichlorodifluoromethane (CFC 12)	16.4	20.0	82	45 - 159
Dichloromethane	16.8	20.0	84	75 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34-PED TR0272
Sample Matrix: Water

Service Request: R1103705
Date Analyzed: 7/ 7/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 252665

Analyte Name	Lab Control Sample RQ1106596-04 Result	Spike Amount	% Rec	% Rec Limits
Ethylbenzene	18.0	20.0	90	78 - 123
Isopropylbenzene (Cumene)	19.2	20.0	96	73 - 133
Methyl Acetate	22.1	20.0	110	57 - 157
Methyl tert-Butyl Ether	18.1	20.0	90	75 - 126
Methylcyclohexane	21.9	20.0	110	61 - 125
Styrene	18.5	20.0	93	80 - 132
Tetrachloroethene (PCE)	18.1	20.0	90	72 - 131
Toluene	17.8	20.0	89	78 - 122
Trichloroethene (TCE)	18.1	20.0	90	74 - 127
Trichlorofluoromethane (CFC 11)	22.6	20.0	113	69 - 141
Vinyl Chloride	20.6	20.0	103	72 - 138
cis-1,2-Dichloroethene	18.5	20.0	92	78 - 122
cis-1,3-Dichloropropene	17.9	20.0	89	77 - 125
m,p-Xylenes	38.2	40.0	95	79 - 126
n-Butyl Acetate	17.6	20.0	88	31 - 144
o-Xylene	18.4	20.0	92	77 - 118
trans-1,2-Dichloroethene	17.1	20.0	85	75 - 121
trans-1,3-Dichloropropene	16.3	20.0	82	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services
1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____
PAGE _1_ OF _2_

Project Name: LC34 PED Project Number: TR0272
Project Manager: Cory Repta Company: Geosyntec
Company/Address: 130 Research Lane, Ste 2 Phone: 519-822-2230
City, State, Zip: Guelph, ON, Canada FAX:
Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: Br, I	8260C				REMARKS
LC34-DPT328-030.0-20110630	6/30/2011	7:36	-001	W	2	X	X				
LC34-DPT328-039.0-20110630	6/30/2011	7:53	-002	W	2	X	X				
LC34-DPT328-045.0-20110630	6/30/2011	8:10	-003	W	2	X	X				
LC34-DPT328-051.0-20110630	6/30/2011	8:27	-004	W	2	X	X				
~~LC34-DPT328-057.0-20110630~~	~~6/30/2011~~	~~8:41~~		~~W~~	~~2~~	~~X~~	~~X~~	- JS			
LC34-DPT329-030.0-20110630	6/30/2011	9:31	-005	W	2	X	X				
LC34-DPT329-039.0-20110630	6/30/2011	9:55	-006	W	2	X	X				
LC34-DPT329-045.0-20110630	6/30/2011	10:12	-007	W	2	X	X				
LC34-DPT329-051.0-20110630	6/30/2011	10:29	-008	W	2	X	X				
LC34-DPT328-057.0-20110630	6/30/11	8:49	-018	W	1	X					CR 7/05/11

TURNAROUND REQUIREMENTS
____ 24 hr ____ 48 hr ____ 5 BD
__X__ Standard (15 BD)
____ Provide FAX Preliminary Results
Requested Report Date:

REPORT REQUIREMENTS
____ I. Routine Report: Results and Method Blank (Surrogate, as required)
____ II. Results w/ QC (Dup., MS, MSD as req)
____ III. Results (with QC and Calibration Summaries)
____ IV. ASP-B
____ V. CLP
____ EDD?:

Comments/Special Instructions:
Analyze samples per instructions from Cory Repta

Some samples put on hold as per client email 7/5/11 RS

R1103705

Invoice Information
P.O. #
Bill to: TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Bartlett	Printed Name: FEDEX	Printed Name:	Printed Name:
Firm: GEOSYNTEC	Firm:	Firm:	Firm:
Date/Time: 7/1/11 - 1630	Date/Time:	Date/Time:	Date/Time:

Revised COC

5555

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____

PAGE 1 OF 2

Project Name: LC34 PED Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 130 Research Lane, Ste 2 Phone: 519-822-2230

City, State, Zip: Guelph, ON, Canada FAX:

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: Br, I	8260C				REMARKS
LC34-DPT328-030.0-20110630	6/30/2011	7:36	001	W	2	X	X				
LC34-DPT328-039.0-20110630	6/30/2011	7:53	2	W	2	X	X				
LC34-DPT328-045.0-20110630	6/30/2011	8:10	3	W	2	X	X				
LC34-DPT328-051.0-20110630	6/30/2011	8:27	4	W	2	X	X				
~~LC34-DPT328-057.0-20110630~~	~~6/30/2011~~	~~8:42~~		~~W~~	~~2~~	~~X~~	~~X~~	- JB			
LC34-DPT329-030.0-20110630	6/30/2011	9:31	5	W	2	X	X				
LC34-DPT329-039.0-20110630	6/30/2011	9:55	6	W	2	X	X				
LC34-DPT329-045.0-20110630	6/30/2011	10:12	7	W	2	X	X				
LC34-DPT329-051.0-20110630	6/30/2011	10:29	8	W	2	X	X				

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:_____

Invoice Information

P.O. # _____

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

____ III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

____ EDD?: _____

Comments/Special Instructions:

Analyze samples per instructions from Cory Repta

Some analyses/samples put on hold @ pew client email KB 7/5/11

R1103705

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Bartlett	Printed Name: FEDEX	Printed Name:	Printed Name: B Doyle
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 7/1/11 - 1630	Date/Time:	Date/Time:	Date/Time: 7/2/11 0942

R1103705

GeoSyntec Consultants

LC34-PED TR0272

Columbia Analytical Services
1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____
PAGE 2 OF 2

Project Name: LC34 PED Project Number: TR0272
Project Manager: Cory Repta Company: Geosyntec
Company/Address: 130 Research Lane, Ste 2 Phone: 519-822-2230
City, State, Zip: Guelph, ON, Canada FAX:
Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analyses Requested: Br, I	8260C				REMARKS
LC34-DPT330-010.0-20110630	6/30/2011	11:19	-009	W	2	X	X				
LC34-DPT330-030.0-20110630	6/30/2011	11:32	-010	W	2	X	X				
LC34-DPT330-039.0-20110630	6/30/2011	11:47	-011	W	2	X	X				
LC34-DPT330-045.0-20110630	6/30/2011	12:44	-012	W	2	X	X				
LC34-DPT330-051.0-20110630	6/30/2011	13:02	-013	W	2	X	X				
LC34-DPT331-016.0-20110630	6/30/2011	13:48	-014	W	2	X	X				
LC34-DPT331-030.0-20110630	6/30/2011	14:01	-015	W	2	X	X				
LC34-DPT331-039.0-20110630	6/30/2011	14:16	-016	W	2	X	X				
LC34-DPT331-045.0-20110630	6/30/2011	14:33	-017	W	2	X	X				

TURNAROUND REQUIREMENTS
____ 24 hr ____ 48 hr ____ 5 BD
_X_ Standard (15 BD)
____ Provide FAX Preliminary Results
Requested Report Date:

Invoice Information
P.O. #
Bill to: TR0272

REPORT REQUIREMENTS
____ I. Routine Report: Results and Method Blank (Surrogate, as required)
____ II. Results w/ QC (Dup., MS, MSD as req)
____ III. Results (with QC and Calibration Summaries)
____ IV. ASP-B
____ V. CLP
____ EDD?:

Comments/Special Instructions:
Analyze samples per instructions from Cory Repta
Some samples put on hold as per client email KB 7/7/11
R1103705

RELINQUISHED BY:
Signature:
Printed Name: Joseph Bartlett
Firm: Geosyntec
Date/Time: 7/1/11 - 1630

RECEIVED BY:
Signature:
Printed Name: FEDEX
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Date/Time:

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Printed Name:
Firm:
Date/Time:

RECEIVED BY:
Signature:
Printed Name:
Firm:
Date/Time:

SGSCN

Revised COC

Columbia Analytical Services
1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

SR# _____
PAGE 2 OF 2

Project Name: LC34 PED Project Number: TR0272
Project Manager: Cory Repta Company: Geosyntec
Company/Address: 130 Research Lane, Ste 2 Phone: 519-822-2230
City, State, Zip: Guelph, ON, Canada FAX:
Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: Br, I	8260C				REMARKS
LC34-DPT330-010.0-20110630	6/30/2011	11:19	9	W	2	X	X				
LC34-DPT330-030.0-20110630	6/30/2011	11:32	10	W	2	X	X				
LC34-DPT330-039.0-20110630	6/30/2011	11:47	11	W	2	X	X				
LC34-DPT330-045.0-20110630	6/30/2011	12:44	12	W	2	X	X				
LC34-DPT330-051.0-20110630	6/30/2011	13:02	13	W	2	X	X				
LC34-DPT331-016.0-20110630	6/30/2011	13:48	14	W	2	X	X				
LC34-DPT331-030.0-20110630	6/30/2011	14:01	15	W	2	X	X				
LC34-DPT331-039.0-20110630	6/30/2011	14:16	16	W	2	X	X				
LC34-DPT331-045.0-20110630	6/30/2011	14:33	17	W	2	X	X				

TURNAROUND REQUIREMENTS
____ 24 hr ____ 48 hr ____ 5 BD
__X__ Standard (15 BD)
____ Provide FAX Preliminary Results
Requested Report Date:_____

Invoice Information
P.O. # _____
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REPORT REQUIREMENTS
____ I. Routine Report: Results and Method Blank (Surrogate, as required)
____ II. Results w/ QC (Dup., MS, MSD as req)
____ III. Results (with QC and Calibration Summaries)
____ IV. ASP-B
____ V. CLP
____ EDD?:

Comments/Special Instructions:
Analyze samples per instructions from Cory Repta
Some samples/analyses put on hold as per client email. KB 7/5/11
R1103705

RELINQUISHED BY:
Signature: [signature]
Printed Name: Joseph Bartlett
Firm: Geosyntec
Date/Time: 7/1/11 – 1630

RECEIVED BY:
Signature:
Printed Name: FEDEX
Firm:
Date/Time:

RELINQUISHED BY:
Signature:
Printed Name:
Firm:
Date/Time:

RECEIVED BY:
Signature: [signature]
Printed Name: B Doyle
Firm: CAS
Date/Time: 7/2/11 0942

R1103705
GeoSyntec Consultants
LC34-PED TR0272

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1103705

Cooler received on 7/2/11 by: BD COURIER: CAS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO	
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO	
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	N/A
5.	Were Ice or Ice packs present?	YES	NO	
6.	Where did the bottles originate?	CAS/ROC, CLIENT		
7.	Temperature of cooler(s) upon receipt:	2.1°		

Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 7/2@0948

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: VB 7/5/11

Cooler Breakdown: Date: 7/5/11 Time: 1014 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO	
2.	Did all bottle labels and tags agree with custody papers?	YES	NO	
3.	Were correct containers used for the tests indicated?	YES	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	N/A

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 053011-2V

Other Comments: _____

PC Secondary Review: VB 7/20/11

*significant air bubbles: VOA > 5-6 mm : WC > 2mm diameter

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Newberry, Florida 32669

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Email: info@kbmobilelabs.com

July 6, 2011

Rebecca DaPrato
GeoSyntec Consultants
6770 S. Washington Ave, Suite 3
Titusville, FL 32780

RE: NASA CCAFS LC34, KSC, FL - Final Data Report
KB Labs Project # 11-107

Dear Ms. DaPrato:

Enclosed is the final report of the on-site analysis performed by KB Labs, Inc. at the above referenced site. Samples were collected and analyzed on June 30, 2011. Included are a brief project narrative, data report narrative, tables listing quality control results, final analytical results, and sample chain-of-custody form.

KB Labs' mobile laboratories have been inspected by the FDOH Bureau of Laboratories and are NELAP Certified as of April 1, 2003. Our personnel, methodology, proficiency testing, and quality assurance requirements comply with the guidelines of Chapter 62-160 of the Florida Administrative Code and with the consensus standards adopted at the National Environmental Laboratory Accreditation Conference (NELAC). Data for the site referenced above were determined in accordance with published procedures under Test Methods for Evaluating Solid Waste (EPA SW-846, Update III Revised May 1997). Unless otherwise indicated on the quality control narrative accompanying the data report, the quality assurance and quality control procedures performed in conjunction with analysis of groundwater samples demonstrated that the reported data met our requirements for accuracy and precision under NELAC Standards.

If you have any questions, please do not hesitate to call me or Kelly Bergdoll, President of KB Labs, at (352) 367-0073.

Sincerely,

KB Labs, Inc.

Todd Romero
Director of Operations

"KB Labs is a small, woman-owned business enterprise."

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PROJECT NARRATIVE

Project Scope

On June 30, 2011, a total of 19 water samples were analyzed for GeoSyntec Consultants at KSC, Winter Park, FL. The samples were analyzed for vinyl chloride, freon 113, 1,1-dichloroethene, cis- and trans-1, 2-dichloroethene, trichloroethene, tetrachloroethene, and n-butyl-acetate.

NELAP Certification

KB Mobile Labs Unit KB1: FDOH NELAP Certification Number E8281

KB Labs is not certified for Freon 113 and n-butylacetate. Data should be considered screening level only.

Analytical Procedure

All samples were analyzed using SW846 Method 5030/8260 for waters. Ten (10) milliliters (mL) of water or air (air samples) were purged with helium and the volatile organic compounds (VOCs) were collected on a solid-phase adsorption trap. The adsorption trap was heated and back-purged with helium. The components were then separated by capillary column gas chromatography and measured with a mass spectrometer (GC/MS) operated in the electron impact full-scan mode. The individual VOCs in the samples were measured against corresponding VOC standards.

Analytical Results

Laboratory results were provided to the client on an as-completed or next-day basis. Final results of the on-site analyses are provided in a hardcopy report. The data produced and reported in the field has been reviewed and approved for this final report by the Director of Operations for KB Labs.

Uncertainty of Reported Values

All measurement data presented in this report are subject to a degree of uncertainty and the degree of uncertainty varies with each compound of interest. KB Labs estimates the uncertainty of each measurement using a statistical evaluation of the standard deviation from the mean percent recovery of a number of trials of a given measurement. More specifically, KB Labs maintains historical percent recovery control limits at the 99% confidence level for each analyte of interest. These are calculated as $\pm$ 3 times the standard deviation from the mean of historical measurements of the percent recovery of

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spikes of the analytes of interest into actual and control sample matrices. For example, if the lower and upper percent recovery control limits for a specific analyte of interest have been determined to be 70 and 100 percent respectively, a reported value of 10.0 ug/L will be with 99% confidence 7.0 to 13.0 ug/L.For more information about KB Labs estimation of uncertainty, contact KB Labs' quality assurance officer and/or request a copy of KB Labs' SOP for determining measurement uncertainty.

Quality Control (QC) Data

Surrogate Recoveries – Table 1 lists the daily analytical sequence and percent recovery results for surrogate compounds, which were added to all analyses. Four (4) surrogate compounds were added to each analysis in order to continually monitor general method performance.

VOC Spike Recoveries – Table 2 lists the percent recovery results for matrix spike and laboratory control samples. A known amount of each target compound was added to selected field samples and to laboratory reagent water in order to monitor the performance of each of the target compounds in the actual matrix and in laboratory reagent water.

Method Blanks – Daily analysis of laboratory reagent water samples was performed in order to monitor the cleanliness of the analytical system.

DATA REPORT NARRATIVE

1. All sample data has been reviewed and, if required, updated in the Final Data Report for rounding and significant figures.

2. Changes for sample ID LC34-DPT329-045.0-20110630 from Field Data Report:
   Freon 113 1200 ug/L changed to 5000 ug/L.
   Trichloroethene 39000 ug/L changed to 34000 ug/L.

3. Sample ID LC34-DPT330-045.0-20110630 reported trichloroethene 38000 ug/L in Field Report. Changed to 3800 ug/L.

4. As per NASA Client request for diluted samples between the lab RL and MDL are reported with FDEP Data Qualifier "I". Some results were changed from the Field Report to the Final Report to reflect this requirement.

5. Because there is no MDL for n-Butylacetate, values below PQL are reported with FDEP Data Qualifier "J" for estimated data.

KB LABS, INC.

Table 1: Analytical Run Sequence/Surrogate Percent Recoveries

Client: GeoSyntec Consultants	**Driller/Sampler**: GeoSyntec Consultants	**Analyst:** Brad Weichert
Site: NASA CCAFS LC34	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 11-107
On-site Dates: 6/30/11	**Client Project Manager**: Rebecca DaPrato	**Matrix:** Water

Sample ID	Date of Analysis	Surrogate % Recovery				Surrogate Control Limits			
		S1*	S2*	S3*	S4*	S1*	S2*	S3*	S4*
BLANK	06/29/11	101	98	106	102	Pass	Pass	Pass	Pass
VSTD 1	06/29/11	99	100	102	100	Pass	Pass	Pass	Pass
VSTD 5	06/29/11	98	101	100	98	Pass	Pass	Pass	Pass
VSTD 10	06/29/11	97	99	100	103	Pass	Pass	Pass	Pass
VSTD 20	06/29/11	108	102	98	99	Pass	Pass	Pass	Pass
VSTD 50	06/29/11	94	96	101	100	Pass	Pass	Pass	Pass
VSTD 100	06/29/11	104	101	98	101	Pass	Pass	Pass	Pass
VSTD 20	06/30/11	99	97	102	99	Pass	Pass	Pass	Pass
VSTD 20	06/30/11	95	96	101	102	Pass	Pass	Pass	Pass
BLANK	06/30/11	107	104	100	99	Pass	Pass	Pass	Pass
LC34-DPT328-030.0 1:1000	06/30/11	107	102	102	99	Pass	Pass	Pass	Pass
LC34-DPT328-039.0 1:1000	06/30/11	104	98	101	98	Pass	Pass	Pass	Pass
LC34-DPT328-045.0 1:500	06/30/11	104	100	98	98	Pass	Pass	Pass	Pass
LC34-DPT328-051.0 1:10	06/30/11	108	101	99	98	Pass	Pass	Pass	Pass
LC34-DPT328-057.0	06/30/11	110	110	94	95	Pass	Pass	Pass	Pass
LC34-DPT329-030.0 1:10000	06/30/11	96	91	97	95	Pass	Pass	Pass	Pass
LC34-DPT329-039.0 1:1000	06/30/11	97	93	97	94	Pass	Pass	Pass	Pass
LC34-DPT329-045.0 1:2000	06/30/11	108	101	99	95	Pass	Pass	Pass	Pass
LC34-DPT329-051.0 1:5000	06/30/11	102	99	95	92	Pass	Pass	Pass	Pass
LC34-DPT330-010.0 1:5	06/30/11	100	97	96	93	Pass	Pass	Pass	Pass
LC34-DPT330-030.0 1:500	06/30/11	112	107	96	94	Pass	Pass	Pass	Pass
LC34-DPT330-039.0 1:500	06/30/11	101	95	94	90	Pass	Pass	Pass	Pass
LC34-DPT330-045.0 1:2000	06/30/11	109	108	96	93	Pass	Pass	Pass	Pass
LC34-DPT330-051.0 1:200	06/30/11	108	110	95	97	Pass	Pass	Pass	Pass
LC34-DPT331-016.0 1:200	06/30/11	108	106	96	94	Pass	Pass	Pass	Pass
LC34-DPT331-030.0 1:2000	06/30/11	111	107	93	94	Pass	Pass	Pass	Pass
LC34-DPT331-039.0 1:1000	06/30/11	111	112	97	95	Pass	Pass	Pass	Pass
LC34-DPT331-045.0 1:2000	06/30/11	110	107	97	97	Pass	Pass	Pass	Pass
IDW-183863-20110630 1:50	06/30/11	108	106	96	94	Pass	Pass	Pass	Pass
LC34-DPT328-057.0 MS	06/30/11	108	103	95	94	Pass	Pass	Pass	Pass
LC34-DPT328-057.0 MSD	06/30/11	108	101	96	96	Pass	Pass	Pass	Pass
LCS	06/30/11	106	104	93	99	Pass	Pass	Pass	Pass
CCS	06/30/11	104	101	95	97	Pass	Pass	Pass	Pass
Comments:	Although some surrogates may be out of the control percent recovery range, other supporting QC, such as matrix spikes, matrix spike duplicates, method blanks, and laboratory control samples, are performed by KB Labs to further validate reported data.								

***Surrogate Compounds:**
S1 = Dibromofluoromethane (84% - 121%)
S2 = 1,2- Dichloroethane-D4 (69% - 133%)
S3 = Toluene-D8 (87% - 111%)
S4 = 4-Bromofluorobenzene (76% - 125%)

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: GeoSyntec Consultants	**Driller/Sampler**: GeoSyntec Consultants	**Analyst:** Brad Weichert
Site: NASA CCAFS LC34	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 11-107
Onsite Dates: 6/30/11	**Client Project Manager:** Rebecca DaPrato	**Matrix**: Water

Matrix Spike/Matrix Spike Duplicate (MS/MSD):

Samples: LC34-DPT328-057.0 **Date of Analysis:** 6/30/2011

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Vinyl Chloride	46	156	20	91	94	4	Pass	Pass	Pass
Freon 113	50	143	20	10	10	4	< LCL	< LCL	Pass
1,1-Dichloroethene	47	150	20	90	95	6	Pass	Pass	Pass
Trans-1,2-Dichloroethene	61	135	20	91	97	7	Pass	Pass	Pass
Cis-1,2-Dichloroethene	62	141	20	90	111	20	Pass	Pass	> RPDL
Trichloroethene	60	127	20	110	116	5	Pass	Pass	Pass
Tetrachloroethene	50	132	20	94	99	5	Pass	Pass	Pass
n-Butyl- Acetate	70	130	100	82	95	15	Pass	Pass	Pass

Note: Control Limits are based on a semi-annual historical evaluation of mobile unit and method guidelines.

Laboratory Control Spikes (LCS):

Samples: LCS 1 **Date of Analysis:** 6/30/2011

Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower		Upper	LCS#1			LCS#1		
Vinyl Chloride	52	to	150	90			Pass		
Freon 113	59	to	168	10			< LCL		
1,1-Dichloroethene	58	to	132	92			Pass		
Trans-1,2-Dichloroethene	54	to	140	92			Pass		
Cis-1,2-Dichloroethene	67	to	126	110			Pass		
Trichloroethene	68	to	119	97			Pass		
Tetrachloroethene	58	to	127	94			Pass		
n-Butyl- Acetate	70	to	130	138			> UCL		

Note: Control Limits are based on a semi-annual historical evaluation of mobile unit and method guidelines.

KB LABS, INC.

Final Data Report

Project Number : 11-107

NASA CCAFS LC34

KSC, FL

Prepared for: GeoSyntec Consultants

Samplel ID	Analysis Date	Matrix	Dilution Factor	Vinyl chloride	Freon 113	1,1-Dichloroethene	trans-1,2-Dichloroethene	cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene	n-Butyl Acetate
Water MDL (ug/L)				**0.24**	**NA**	**0.29**	**0.28**	**0.27**	**0.29**	**0.30**	**NA**
LC34-DPT328-030.0-20110630	6/30/11	Water	1000	<240 I	<1000	<1000	**500 I**	**45000**	**4100**	<1000	**1500 J**
LC34-DPT328-039.0-20110630	6/30/11	Water	1000	**1600**	<1000	<1000	**330 I**	**52000**	**1400**	<1000	**19000**
LC34-DPT328-045.0-20110630	6/30/11	Water	500	<120 I	<500	<500	**210 I**	**34000**	**2100**	<500	**640 J**
LC34-DPT328-051.0-20110630	6/30/11	Water	10	**4.4 I**	<10	<10	<10	**250**	**4.5 I**	<10	**26 J**
LC34-DPT328-057.0-20110630	6/30/11	Water	1	<1.0	<1.0	<1.0	<1.0	**64.8**	**1.3**	<1.0	**440**
LC34-DPT329-030.0-20110630	6/30/11	Water	10000	<2400 I	**18000**	<10000	<10000	**4800 I**	<2900 I	<10000	**1300000**
LC34-DPT329-039.0-20110630	6/30/11	Water	1000	<240 I	**1400**	<1000	<1000	**11000**	**11000**	<1000	**1200000**
LC34-DPT329-045.0-20110630	6/30/11	Water	2000	<480 I	**5000**	<2000	<2000	**4900**	**34000**	<2000	**1300000**
LC34-DPT329-051.0-20110630	6/30/11	Water	5000	<1200 I	**4100 I**	<5000	<5000	<5000	**9000**	<5000	**1700000**
LC34-DPT330-010.0-20110630	6/30/11	Water	5	**12**	<5.0	<5.0	**7.0**	**230**	**3.8 I**	<5.0	**1600**
LC34-DPT330-030.0-20110630	6/30/11	Water	500	**240 I**	<500	<500	**510**	**38000**	**1700**	<500	**19000**
LC34-DPT330-039.0-20110630	6/30/11	Water	500	**2300**	<500	<500	**290 I**	**50000**	**640**	<500	**20000**
LC34-DPT330-045.0-20110630	6/30/11	Water	2000	<480 I	<2000	<2000	<2000	**20000**	**3800**	<2000	**860000**
LC34-DPT330-051.0-20110630	6/30/11	Water	200	<48 I	<200	<200	<200	**1200**	<58 I	<200	**97000**

Reporting units for waters are ug/L .

KB LABS, INC.

Final Data Report

Project Number : 11-107

NASA CCAFS LC34

KSC, FL

Prepared for: GeoSyntec Consultants

Samplel ID	Analysis Date	Matrix	Dilution Factor	Vinyl chloride	Freon 113	1,1-Dichloroethene	trans-1,2-Dichloroethene	cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene	n-Butyl Acetate
Water MDL (ug/L)				**0.24**	**NA**	**0.29**	**0.28**	**0.27**	**0.29**	**0.30**	**NA**
LC34-DPT331-016.0-20110630	6/30/11	Water	200	**1000**	**18000**	<200	**390**	**14000**	<58 I	<200	**1700**
LC34-DPT331-030.0-20110630	6/30/11	Water	2000	**960 I**	**180000**	<2000	<2000	**15000**	**24000**	<2000	**24000**
LC34-DPT331-039.0-20110630	6/30/11	Water	1000	<240 I	**44000**	<1000	<1000	**20000**	**72000**	<1000	**490000**
LC34-DPT331-045.0-20110630	6/30/11	Water	2000	<480 I	**68000**	<2000	<2000	**4700**	**190000**	<2000	**55000**
LC34-IDW-183863-20110630	6/30/11	Water	50	**28 I**	**2000**	<50	<50	**1200**	**1000**	<50	**7000**

Reporting units for waters are ug/L .

CHAIN-OF-CUSTODY RECORD

Mobile Laboratory Services

☐ 25132 SW 1st Avenue
Newberry, FL 32669
TEL (352) 367-0073
FAX (352) 472-5832

☐ 200 Quade Drive
Cary, NC 27513
TEL (919) 678-0030

MOBILE UNIT # 631

CLIENT NAME: GeoSyntec

PROJECT NAME & ADDRESS: LC34

SAMPLERS

CONTACT PERSON: DeBartlett

BATCH # (Lab Use Only)

PRESERVATION: C Chilled; H HCL; Ot Other (see Remarks)

IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS: VOLATILES

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	COMMENT / SAMPLE PRE FIX
LC34											
DPT328-030.0-20110630	110630	~~0736~~ 0740		✓	6/30/11	0740					
039.0		0753				0755					
045.0		0810				0815					
057.0		0824				0830					
057.0		0849				0855					
DPT329-030.0		0931				0935					very Strong nRB odor
039.0		0955				1000					
045.0		1012				1015					
057.0		1024				1035					
DPT330-010.0		1119				1125					
030.0		1132				1135					
039.0		1147				1150					
045.0		1244				1250					
057.0		1302				1305					
DPT331-~~030.0~~ 016.0		1348				1350					

	Date / Time	Received by: (Signature)	Date / Time
Precleaned Containers Relinquished by: (Signature)			6/30/11
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time 6/30/11

Remarks and Observations

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

Mobile Laboratory Services

☐ 25132 SW 1st Avenue
Newberry, FL 32669
TEL (352) 367-0073
FAX (352) 472-5832

☐ 200 Quade Drive
Cary, NC 27513
TEL (919) 678-0030

MOBILE UNIT # 1401

CLIENT NAME: GreenyTec

PROJECT NAME & ADDRESS: LC34

SAMPLERS:

CONTACT PERSON: Joe Bartlett

BATCH # (Lab Use Only):

PRESERVATION
C Chilled
H HCL
Ot Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS: VOLATILES	COMMENT / SAMPLE PRE FIX
DPT331-030.0-20110630		1401		✓	6/30/11	1405		W	2	✓	
039.0		1416				1420					
045.0		1437				1435					
IDW-183863		1510				1520					

Precleaned Containers Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time 6/30/11	**Remarks and Observations**
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time 6/30/11	

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

Columbia Analytical Services
1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

August 02, 2011

Service Request No: R1103812

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on July 8, 2011. For your reference, these analyses have been assigned our service request number **R1103812**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1103812
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	780/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Eleven (11) water samples were collected by the client on 7/7/11 and were received for analysis at Columbia Analytical Services on 7/8/11 via a national courier. The samples were received at a cooler temperature of 3.0°C within the guidelines of 0-6°C.

Volatile Organic Compounds

Eleven (11) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except for 1.1.1-Trichloroethane (23.0), 1,2-Dichloroethane (20.2), Carbon Disulfide (25.0), Chloroform (20.9) and Trichlorofluoromethane (21.8) which were above the 20 %D on the 7/10/11 run. Any hits for these compounds on associated runs would be considered estimated and are flagged as "J". Hits were between the MRL and MDL.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Hits above the calibration range of the standards are repeated at the appropriate dilution for the hit. The data is flagged as "D" on the report. The sample data is reported in a merged format to be consistent with other reports for this project at the client's request.

All samples were analyzed within 7 days from collection, the holding time for unpreserved vials which were to be used for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

The Laboratory Method Blanks were free from contamination except for a 1,2,4-Trichlorobenzene hit in the 7/10/11 blank and 1,2,4-Trichlorobenzene, Acetone, and Chloroform in the 7/11/11 blank. No data required "B" flags however.

No other analytical or QC problems were encountered.

Inorganic Parameters

Eleven () water samples were analyzed for Bromide and Iodide by IC method 300.0.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

Approved by _____ **Date** 8/3/11

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burke **Date** 8/3/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1103812

Lab ID	Client ID
R1103812-001	LC34-BW0001C-038.5-20110707
R1103812-002	LC34-BW0001D-045.5-20110707
R1103812-003	LC34-BW0001E-052.5-20110707
R1103812-004	LC34-BW0002C-038.5-20110707
R1103812-005	LC34-BW0002D-045.5-20110707
R1103812-006	LC34-BW0002E-052.5-20110707
R1103812-007	LC34-BW0003C-038.5-20110707
R1103812-008	LC34-BW0003D-045.5-20110707
R1103812-009	LC34-BW0003E-052.5-20110707
R1103812-010	LC34-RW0007-038.5-20110707
R1103812-011	LC34-RW0008-052.0-20110707

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0900
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001C-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	7/11/11 02:38		253001	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	7/11/11 02:38		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	**19000**		5000	310	1000	NA	7/11/11 02:38		253001	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	7/11/11 02:38		253001	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	7/11/11 02:38		253001	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	7/11/11 02:38		253001	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	7/11/11 02:38		253001	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
n-Butanol	**320000**		250000	11000	1000	NA	7/11/11 02:38		253001	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	7/11/11 02:38		253001	
2-Hexanone	10000	U	10000	350	1000	NA	7/11/11 02:38		253001	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	7/11/11 02:38		253001	
Acetone	20000	U	20000	980	1000	NA	7/11/11 02:38		253001	
Benzene	5000	U	5000	210	1000	NA	7/11/11 02:38		253001	
Bromodichloromethane	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Bromoform	5000	U	5000	270	1000	NA	7/11/11 02:38		253001	
Bromomethane	5000	U	5000	310	1000	NA	7/11/11 02:38		253001	
Carbon Disulfide	10000	U	10000	200	1000	NA	7/11/11 02:38		253001	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	7/11/11 02:38		253001	
Chlorobenzene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Chloroethane	5000	U	5000	310	1000	NA	7/11/11 02:38		253001	
Chloroform	5000	U	5000	220	1000	NA	7/11/11 02:38		253001	
Chloromethane	5000	U	5000	240	1000	NA	7/11/11 02:38		253001	
Cyclohexane	10000	U	10000	240	1000	NA	7/11/11 02:38		253001	
Dibromochloromethane	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	7/11/11 02:38		253001	
Dichloromethane	5000	U	5000	220	1000	NA	7/11/11 02:38		253001	
Ethylbenzene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Methyl Acetate	10000	U	10000	230	1000	NA	7/11/11 02:38		253001	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0900
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001C-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Methylcyclohexane	10000	U	10000	250	1000	NA	7/11/11 02:38		253001	
Styrene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Toluene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Trichloroethene (TCE)	**52000**		5000	230	1000	NA	7/11/11 02:38		253001	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
Vinyl Chloride	**510**	J	5000	230	1000	NA	7/11/11 02:38		253001	
cis-1,2-Dichloroethene	**21000**		5000	200	1000	NA	7/11/11 02:38		253001	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
m,p-Xylenes	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
n-Butyl Acetate	**420000**	D	25000	1100	5000	NA	7/12/11 18:11		253196	
o-Xylene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	
trans-1,2-Dichloroethene	**270**	J	5000	200	1000	NA	7/11/11 02:38		253001	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 02:38		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	7/11/11 02:38	
Dibromofluoromethane	104	89-119	7/11/11 02:38	
Toluene-d8	107	87-121	7/11/11 02:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0900
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001C-038.5-20110707		
Lab Code:	R1103812-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**14.8**		mg/L	1.0	10	NA	7/26/11 15:27	
Iodide	300.0	**22**		mg/L	20	100	NA	7/12/11 19:48	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0932
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001D-045.5-20110707		
Lab Code:	R1103812-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**3.6**		mg/L	1.0	10	NA	7/26/11 15:41	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 00:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0932
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001D-045.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253001

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	7/11/11 03:08		253001	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	7/11/11 03:08		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	**39000**		5000	310	1000	NA	7/11/11 03:08		253001	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	7/11/11 03:08		253001	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	7/11/11 03:08		253001	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	7/11/11 03:08		253001	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	7/11/11 03:08		253001	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
n-Butanol	**23000**	J	250000	11000	1000	NA	7/11/11 03:08		253001	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	7/11/11 03:08		253001	
2-Hexanone	10000	U	10000	350	1000	NA	7/11/11 03:08		253001	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	7/11/11 03:08		253001	
Acetone	**1700**	J	20000	980	1000	NA	7/11/11 03:08		253001	
Benzene	5000	U	5000	210	1000	NA	7/11/11 03:08		253001	
Bromodichloromethane	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Bromoform	5000	U	5000	270	1000	NA	7/11/11 03:08		253001	
Bromomethane	5000	U	5000	310	1000	NA	7/11/11 03:08		253001	
Carbon Disulfide	10000	U	10000	200	1000	NA	7/11/11 03:08		253001	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	7/11/11 03:08		253001	
Chlorobenzene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Chloroethane	5000	U	5000	310	1000	NA	7/11/11 03:08		253001	
Chloroform	5000	U	5000	220	1000	NA	7/11/11 03:08		253001	
Chloromethane	5000	U	5000	240	1000	NA	7/11/11 03:08		253001	
Cyclohexane	10000	U	10000	240	1000	NA	7/11/11 03:08		253001	
Dibromochloromethane	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	7/11/11 03:08		253001	
Dichloromethane	5000	U	5000	220	1000	NA	7/11/11 03:08		253001	
Ethylbenzene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Methyl Acetate	10000	U	10000	230	1000	NA	7/11/11 03:08		253001	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0932
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001D-045.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253001

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Methylcyclohexane	10000	U	10000	250	1000	NA	7/11/11 03:08		253001	
Styrene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Toluene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Trichloroethene (TCE)	**170000**		5000	230	1000	NA	7/11/11 03:08		253001	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
Vinyl Chloride	5000	U	5000	230	1000	NA	7/11/11 03:08		253001	
cis-1,2-Dichloroethene	**5600**		5000	200	1000	NA	7/11/11 03:08		253001	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
m,p-Xylenes	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
n-Butyl Acetate	**60000**		5000	210	1000	NA	7/11/11 03:08		253001	
o-Xylene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
trans-1,2-Dichloroethene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 03:08		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	7/11/11 03:08	
Dibromofluoromethane	102	89-119	7/11/11 03:08	
Toluene-d8	106	87-121	7/11/11 03:08	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1002
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001E-052.5-20110707		
Lab Code:	R1103812-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.2**		mg/L	1.0	10	NA	7/26/11 15:55	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 00:35	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1002
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001E-052.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100	U	100	4.7	20	NA	7/11/11 16:05		253085	
1,1,2,2-Tetrachloroethane	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
1,1,2-Trichloroethane	100	U	100	4.7	20	NA	7/11/11 16:05		253085	
1,1,2-Trichloro-1,2,2-trifluoroethane	100	U	100	6.2	20	NA	7/11/11 16:05		253085	
1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
1,1-Dichloroethene (1,1-DCE)	100	U	100	5.8	20	NA	7/11/11 16:05		253085	
1,2,4-Trichlorobenzene	100	U	100	5.2	20	NA	7/11/11 16:05		253085	
1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	7.6	20	NA	7/11/11 16:05		253085	
1,2-Dibromoethane	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
1,2-Dichlorobenzene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
1,2-Dichloroethane	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
1,2-Dichloropropane	100	U	100	5.7	20	NA	7/11/11 16:05		253085	
1,3-Dichlorobenzene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
1,4-Dichlorobenzene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
n-Butanol	**1500**	J	5000	210	20	NA	7/11/11 16:05		253085	
2-Butanone (MEK)	200	U	200	11	20	NA	7/11/11 16:05		253085	
2-Hexanone	200	U	200	7.0	20	NA	7/11/11 16:05		253085	
4-Methyl-2-pentanone	200	U	200	5.4	20	NA	7/11/11 16:05		253085	
Acetone	400	U	400	20	20	NA	7/11/11 16:05		253085	
Benzene	100	U	100	4.2	20	NA	7/11/11 16:05		253085	
Bromodichloromethane	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Bromoform	100	U	100	5.4	20	NA	7/11/11 16:05		253085	
Bromomethane	100	U	100	6.2	20	NA	7/11/11 16:05		253085	
Carbon Disulfide	200	U	200	4.0	20	NA	7/11/11 16:05		253085	
Carbon Tetrachloride	100	U	100	5.4	20	NA	7/11/11 16:05		253085	
Chlorobenzene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Chloroethane	100	U	100	6.2	20	NA	7/11/11 16:05		253085	
Chloroform	100	U	100	4.4	20	NA	7/11/11 16:05		253085	
Chloromethane	100	U	100	4.8	20	NA	7/11/11 16:05		253085	
Cyclohexane	200	U	200	4.8	20	NA	7/11/11 16:05		253085	
Dibromochloromethane	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Dichlorodifluoromethane (CFC 12)	100	U	100	12	20	NA	7/11/11 16:05		253085	
Dichloromethane	100	U	100	4.4	20	NA	7/11/11 16:05		253085	
Ethylbenzene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Isopropylbenzene (Cumene)	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Methyl Acetate	200	U	200	4.7	20	NA	7/11/11 16:05		253085	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1002
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0001E-052.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Methylcyclohexane	200	U	200	5.0	20	NA	7/11/11 16:05		253085	
Styrene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Tetrachloroethene (PCE)	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Toluene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Trichloroethene (TCE)	**330**		100	4.7	20	NA	7/11/11 16:05		253085	
Trichlorofluoromethane (CFC 11)	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
Vinyl Chloride	100	U	100	4.7	20	NA	7/11/11 16:05		253085	
cis-1,2-Dichloroethene	**1500**		100	4.0	20	NA	7/11/11 16:05		253085	
cis-1,3-Dichloropropene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
m,p-Xylenes	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
n-Butyl Acetate	**3500**		100	4.2	20	NA	7/11/11 16:05		253085	
o-Xylene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	
trans-1,2-Dichloroethene	**11**	J	100	4.0	20	NA	7/11/11 16:05		253085	
trans-1,3-Dichloropropene	100	U	100	4.0	20	NA	7/11/11 16:05		253085	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	7/11/11 16:05	
Dibromofluoromethane	102	89-119	7/11/11 16:05	
Toluene-d8	105	87-121	7/11/11 16:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1042
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002C-038.5-20110707		
Lab Code:	R1103812-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**24.1**		mg/L	1.0	10	NA	7/26/11 16:09	
Iodide	300.0	**14.4**		mg/L	2.0	10	NA	7/13/11 01:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1042
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002C-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	7/11/11 04:09		253001	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	7/11/11 04:09		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	5000	U	5000	310	1000	NA	7/11/11 04:09		253001	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	7/11/11 04:09		253001	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	7/11/11 04:09		253001	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	7/11/11 04:09		253001	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	7/11/11 04:09		253001	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
n-Butanol	**120000**	J	250000	11000	1000	NA	7/11/11 04:09		253001	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	7/11/11 04:09		253001	
2-Hexanone	10000	U	10000	350	1000	NA	7/11/11 04:09		253001	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	7/11/11 04:09		253001	
Acetone	20000	U	20000	980	1000	NA	7/11/11 04:09		253001	
Benzene	5000	U	5000	210	1000	NA	7/11/11 04:09		253001	
Bromodichloromethane	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Bromoform	5000	U	5000	270	1000	NA	7/11/11 04:09		253001	
Bromomethane	5000	U	5000	310	1000	NA	7/11/11 04:09		253001	
Carbon Disulfide	10000	U	10000	200	1000	NA	7/11/11 04:09		253001	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	7/11/11 04:09		253001	
Chlorobenzene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Chloroethane	5000	U	5000	310	1000	NA	7/11/11 04:09		253001	
Chloroform	**250**	J	5000	220	1000	NA	7/11/11 04:09		253001	
Chloromethane	5000	U	5000	240	1000	NA	7/11/11 04:09		253001	
Cyclohexane	10000	U	10000	240	1000	NA	7/11/11 04:09		253001	
Dibromochloromethane	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	7/11/11 04:09		253001	
Dichloromethane	5000	U	5000	220	1000	NA	7/11/11 04:09		253001	
Ethylbenzene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Methyl Acetate	10000	U	10000	230	1000	NA	7/11/11 04:09		253001	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1042
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002C-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Methylcyclohexane	10000	U	10000	250	1000	NA	7/11/11 04:09		253001	
Styrene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Toluene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Trichloroethene (TCE)	**2000**	J	5000	230	1000	NA	7/11/11 04:09		253001	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
Vinyl Chloride	**2200**	J	5000	230	1000	NA	7/11/11 04:09		253001	
cis-1,2-Dichloroethene	**51000**		5000	200	1000	NA	7/11/11 04:09		253001	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
m,p-Xylenes	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
n-Butyl Acetate	**490000**	D	25000	1100	5000	NA	7/11/11 16:36		253085	
o-Xylene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	
trans-1,2-Dichloroethene	**360**	J	5000	200	1000	NA	7/11/11 04:09		253001	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 04:09		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	7/11/11 04:09	
Dibromofluoromethane	104	89-119	7/11/11 04:09	
Toluene-d8	105	87-121	7/11/11 04:09	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1135
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002D-045.5-20110707		
Lab Code:	R1103812-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.2**		mg/L	1.0	10	NA	7/26/11 13:09	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 01:35	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1135
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002D-045.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	12	50	NA	7/11/11 17:06		253085	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	7/11/11 17:06		253085	
1,1,2-Trichloroethane	250	U	250	12	50	NA	7/11/11 17:06		253085	
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	16	50	NA	7/11/11 17:06		253085	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	7/11/11 17:06		253085	
1,1-Dichloroethene (1,1-DCE)	250	U	250	15	50	NA	7/11/11 17:06		253085	
1,2,4-Trichlorobenzene	250	U	250	13	50	NA	7/11/11 17:06		253085	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	50	NA	7/11/11 17:06		253085	
1,2-Dibromoethane	250	U	250	10	50	NA	7/11/11 17:06		253085	
1,2-Dichlorobenzene	250	U	250	10	50	NA	7/11/11 17:06		253085	
1,2-Dichloroethane	250	U	250	10	50	NA	7/11/11 17:06		253085	
1,2-Dichloropropane	250	U	250	15	50	NA	7/11/11 17:06		253085	
1,3-Dichlorobenzene	250	U	250	10	50	NA	7/11/11 17:06		253085	
1,4-Dichlorobenzene	250	U	250	10	50	NA	7/11/11 17:06		253085	
n-Butanol	13000	U	13000	530	50	NA	7/11/11 17:06		253085	
2-Butanone (MEK)	500	U	500	26	50	NA	7/11/11 17:06		253085	
2-Hexanone	500	U	500	18	50	NA	7/11/11 17:06		253085	
4-Methyl-2-pentanone	500	U	500	14	50	NA	7/11/11 17:06		253085	
Acetone	1000	U	1000	49	50	NA	7/11/11 17:06		253085	
Benzene	250	U	250	11	50	NA	7/11/11 17:06		253085	
Bromodichloromethane	250	U	250	10	50	NA	7/11/11 17:06		253085	
Bromoform	250	U	250	14	50	NA	7/11/11 17:06		253085	
Bromomethane	250	U	250	16	50	NA	7/11/11 17:06		253085	
Carbon Disulfide	500	U	500	10	50	NA	7/11/11 17:06		253085	
Carbon Tetrachloride	250	U	250	14	50	NA	7/11/11 17:06		253085	
Chlorobenzene	250	U	250	10	50	NA	7/11/11 17:06		253085	
Chloroethane	250	U	250	16	50	NA	7/11/11 17:06		253085	
Chloroform	250	U	250	11	50	NA	7/11/11 17:06		253085	
Chloromethane	250	U	250	12	50	NA	7/11/11 17:06		253085	
Cyclohexane	500	U	500	12	50	NA	7/11/11 17:06		253085	
Dibromochloromethane	250	U	250	10	50	NA	7/11/11 17:06		253085	
Dichlorodifluoromethane (CFC 12)	250	U	250	29	50	NA	7/11/11 17:06		253085	
Dichloromethane	250	U	250	11	50	NA	7/11/11 17:06		253085	
Ethylbenzene	250	U	250	10	50	NA	7/11/11 17:06		253085	
Isopropylbenzene (Cumene)	250	U	250	10	50	NA	7/11/11 17:06		253085	
Methyl Acetate	500	U	500	12	50	NA	7/11/11 17:06		253085	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1135
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002D-045.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	10	50	NA	7/11/11 17:06		253085	
Methylcyclohexane	500	U	500	13	50	NA	7/11/11 17:06		253085	
Styrene	250	U	250	10	50	NA	7/11/11 17:06		253085	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	7/11/11 17:06		253085	
Toluene	250	U	250	10	50	NA	7/11/11 17:06		253085	
Trichloroethene (TCE)	**41**	J	250	12	50	NA	7/11/11 17:06		253085	
Trichlorofluoromethane (CFC 11)	250	U	250	10	50	NA	7/11/11 17:06		253085	
Vinyl Chloride	**1300**		250	12	50	NA	7/11/11 17:06		253085	
cis-1,2-Dichloroethene	**8000**		250	10	50	NA	7/11/11 17:06		253085	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	7/11/11 17:06		253085	
m,p-Xylenes	250	U	250	10	50	NA	7/11/11 17:06		253085	
n-Butyl Acetate	**49**	J	250	11	50	NA	7/11/11 17:06		253085	
o-Xylene	250	U	250	10	50	NA	7/11/11 17:06		253085	
trans-1,2-Dichloroethene	**58**	J	250	10	50	NA	7/11/11 17:06		253085	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	7/11/11 17:06		253085	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/11/11 17:06	
Dibromofluoromethane	108	89-119	7/11/11 17:06	
Toluene-d8	107	87-121	7/11/11 17:06	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1110
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002E-052.5-20110707		
Lab Code:	R1103812-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.5**		mg/L	1.0	10	NA	7/26/11 13:23	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 01:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1110
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002E-052.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100	U	100	4.7	20	NA	7/11/11 17:37		253085	
1,1,2,2-Tetrachloroethane	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
1,1,2-Trichloroethane	100	U	100	4.7	20	NA	7/11/11 17:37		253085	
1,1,2-Trichloro-1,2,2-trifluoroethane	100	U	100	6.2	20	NA	7/11/11 17:37		253085	
1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
1,1-Dichloroethene (1,1-DCE)	100	U	100	5.8	20	NA	7/11/11 17:37		253085	
1,2,4-Trichlorobenzene	100	U	100	5.2	20	NA	7/11/11 17:37		253085	
1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	7.6	20	NA	7/11/11 17:37		253085	
1,2-Dibromoethane	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
1,2-Dichlorobenzene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
1,2-Dichloroethane	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
1,2-Dichloropropane	100	U	100	5.7	20	NA	7/11/11 17:37		253085	
1,3-Dichlorobenzene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
1,4-Dichlorobenzene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
n-Butanol	**2000**	J	5000	210	20	NA	7/11/11 17:37		253085	
2-Butanone (MEK)	200	U	200	11	20	NA	7/11/11 17:37		253085	
2-Hexanone	200	U	200	7.0	20	NA	7/11/11 17:37		253085	
4-Methyl-2-pentanone	200	U	200	5.4	20	NA	7/11/11 17:37		253085	
Acetone	400	U	400	20	20	NA	7/11/11 17:37		253085	
Benzene	100	U	100	4.2	20	NA	7/11/11 17:37		253085	
Bromodichloromethane	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Bromoform	100	U	100	5.4	20	NA	7/11/11 17:37		253085	
Bromomethane	100	U	100	6.2	20	NA	7/11/11 17:37		253085	
Carbon Disulfide	200	U	200	4.0	20	NA	7/11/11 17:37		253085	
Carbon Tetrachloride	100	U	100	5.4	20	NA	7/11/11 17:37		253085	
Chlorobenzene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Chloroethane	100	U	100	6.2	20	NA	7/11/11 17:37		253085	
Chloroform	100	U	100	4.4	20	NA	7/11/11 17:37		253085	
Chloromethane	100	U	100	4.8	20	NA	7/11/11 17:37		253085	
Cyclohexane	200	U	200	4.8	20	NA	7/11/11 17:37		253085	
Dibromochloromethane	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Dichlorodifluoromethane (CFC 12)	100	U	100	12	20	NA	7/11/11 17:37		253085	
Dichloromethane	100	U	100	4.4	20	NA	7/11/11 17:37		253085	
Ethylbenzene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Isopropylbenzene (Cumene)	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Methyl Acetate	200	U	200	4.7	20	NA	7/11/11 17:37		253085	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1110
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0002E-052.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Methylcyclohexane	200	U	200	5.0	20	NA	7/11/11 17:37		253085	
Styrene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Tetrachloroethene (PCE)	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Toluene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Trichloroethene (TCE)	100	U	100	4.7	20	NA	7/11/11 17:37		253085	
Trichlorofluoromethane (CFC 11)	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
Vinyl Chloride	100	U	100	4.7	20	NA	7/11/11 17:37		253085	
cis-1,2-Dichloroethene	**62**	J	100	4.0	20	NA	7/11/11 17:37		253085	
cis-1,3-Dichloropropene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
m,p-Xylenes	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
n-Butyl Acetate	**3300**		100	4.2	20	NA	7/11/11 17:37		253085	
o-Xylene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
trans-1,2-Dichloroethene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	
trans-1,3-Dichloropropene	100	U	100	4.0	20	NA	7/11/11 17:37		253085	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	7/11/11 17:37	
Dibromofluoromethane	104	89-119	7/11/11 17:37	
Toluene-d8	107	87-121	7/11/11 17:37	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0955
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003C-038.5-20110707		
Lab Code:	R1103812-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**36.1**		mg/L	2.0	20	NA	7/25/11 23:03	
Iodide	300.0	**58**		mg/L	20	100	NA	7/12/11 21:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0955
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003C-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	7/11/11 05:40		253001	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	7/11/11 05:40		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	5000	U	5000	310	1000	NA	7/11/11 05:40		253001	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	7/11/11 05:40		253001	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	7/11/11 05:40		253001	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	7/11/11 05:40		253001	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	7/11/11 05:40		253001	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
n-Butanol	**360000**		250000	11000	1000	NA	7/11/11 05:40		253001	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	7/11/11 05:40		253001	
2-Hexanone	10000	U	10000	350	1000	NA	7/11/11 05:40		253001	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	7/11/11 05:40		253001	
Acetone	20000	U	20000	980	1000	NA	7/11/11 05:40		253001	
Benzene	5000	U	5000	210	1000	NA	7/11/11 05:40		253001	
Bromodichloromethane	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Bromoform	5000	U	5000	270	1000	NA	7/11/11 05:40		253001	
Bromomethane	5000	U	5000	310	1000	NA	7/11/11 05:40		253001	
Carbon Disulfide	10000	U	10000	200	1000	NA	7/11/11 05:40		253001	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	7/11/11 05:40		253001	
Chlorobenzene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Chloroethane	5000	U	5000	310	1000	NA	7/11/11 05:40		253001	
Chloroform	5000	U	5000	220	1000	NA	7/11/11 05:40		253001	
Chloromethane	5000	U	5000	240	1000	NA	7/11/11 05:40		253001	
Cyclohexane	10000	U	10000	240	1000	NA	7/11/11 05:40		253001	
Dibromochloromethane	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	7/11/11 05:40		253001	
Dichloromethane	5000	U	5000	220	1000	NA	7/11/11 05:40		253001	
Ethylbenzene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Methyl Acetate	10000	U	10000	230	1000	NA	7/11/11 05:40		253001	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0955
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003C-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Methylcyclohexane	10000	U	10000	250	1000	NA	7/11/11 05:40		253001	
Styrene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Toluene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Trichloroethene (TCE)	5000	U	5000	230	1000	NA	7/11/11 05:40		253001	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
Vinyl Chloride	**2400**	J	5000	230	1000	NA	7/11/11 05:40		253001	
cis-1,2-Dichloroethene	**4300**	J	5000	200	1000	NA	7/11/11 05:40		253001	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
m,p-Xylenes	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
n-Butyl Acetate	**640000**	D	25000	1100	5000	NA	7/11/11 18:07		253085	
o-Xylene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
trans-1,2-Dichloroethene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 05:40		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/11/11 05:40	
Dibromofluoromethane	103	89-119	7/11/11 05:40	
Toluene-d8	106	87-121	7/11/11 05:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1110
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003D-045.5-20110707		
Lab Code:	R1103812-008	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**23.5**		mg/L	2.0	20	NA	7/25/11 23:17	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 01:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1110
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003D-045.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	7/11/11 06:10		253001	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	7/11/11 06:10		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	**420**	J	5000	310	1000	NA	7/11/11 06:10		253001	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	7/11/11 06:10		253001	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	7/11/11 06:10		253001	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	7/11/11 06:10		253001	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	7/11/11 06:10		253001	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
n-Butanol	**350000**		250000	11000	1000	NA	7/11/11 06:10		253001	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	7/11/11 06:10		253001	
2-Hexanone	10000	U	10000	350	1000	NA	7/11/11 06:10		253001	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	7/11/11 06:10		253001	
Acetone	20000	U	20000	980	1000	NA	7/11/11 06:10		253001	
Benzene	5000	U	5000	210	1000	NA	7/11/11 06:10		253001	
Bromodichloromethane	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Bromoform	5000	U	5000	270	1000	NA	7/11/11 06:10		253001	
Bromomethane	5000	U	5000	310	1000	NA	7/11/11 06:10		253001	
Carbon Disulfide	10000	U	10000	200	1000	NA	7/11/11 06:10		253001	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	7/11/11 06:10		253001	
Chlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Chloroethane	5000	U	5000	310	1000	NA	7/11/11 06:10		253001	
Chloroform	5000	U	5000	220	1000	NA	7/11/11 06:10		253001	
Chloromethane	5000	U	5000	240	1000	NA	7/11/11 06:10		253001	
Cyclohexane	10000	U	10000	240	1000	NA	7/11/11 06:10		253001	
Dibromochloromethane	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	7/11/11 06:10		253001	
Dichloromethane	5000	U	5000	220	1000	NA	7/11/11 06:10		253001	
Ethylbenzene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Methyl Acetate	10000	U	10000	230	1000	NA	7/11/11 06:10		253001	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1110
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003D-045.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Methylcyclohexane	10000	U	10000	250	1000	NA	7/11/11 06:10		253001	
Styrene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Toluene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Trichloroethene (TCE)	**1300**	J	5000	230	1000	NA	7/11/11 06:10		253001	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
Vinyl Chloride	**400**	J	5000	230	1000	NA	7/11/11 06:10		253001	
cis-1,2-Dichloroethene	**7700**		5000	200	1000	NA	7/11/11 06:10		253001	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
m,p-Xylenes	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
n-Butyl Acetate	**830000**	D	25000	1100	5000	NA	7/11/11 18:37		253085	
o-Xylene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
trans-1,2-Dichloroethene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 06:10		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/11/11 06:10	
Dibromofluoromethane	105	89-119	7/11/11 06:10	
Toluene-d8	106	87-121	7/11/11 06:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1045
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003E-052.5-20110707		
Lab Code:	R1103812-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**44.5**		mg/L	2.0	20	NA	7/25/11 23:31	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 02:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1045
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003E-052.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	7/11/11 06:40		253001	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	7/11/11 06:40		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	**560**	J	5000	310	1000	NA	7/11/11 06:40		253001	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	7/11/11 06:40		253001	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	7/11/11 06:40		253001	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	7/11/11 06:40		253001	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	7/11/11 06:40		253001	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
n-Butanol	**520000**		250000	11000	1000	NA	7/11/11 06:40		253001	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	7/11/11 06:40		253001	
2-Hexanone	10000	U	10000	350	1000	NA	7/11/11 06:40		253001	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	7/11/11 06:40		253001	
Acetone	20000	U	20000	980	1000	NA	7/11/11 06:40		253001	
Benzene	5000	U	5000	210	1000	NA	7/11/11 06:40		253001	
Bromodichloromethane	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Bromoform	5000	U	5000	270	1000	NA	7/11/11 06:40		253001	
Bromomethane	5000	U	5000	310	1000	NA	7/11/11 06:40		253001	
Carbon Disulfide	10000	U	10000	200	1000	NA	7/11/11 06:40		253001	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	7/11/11 06:40		253001	
Chlorobenzene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Chloroethane	5000	U	5000	310	1000	NA	7/11/11 06:40		253001	
Chloroform	5000	U	5000	220	1000	NA	7/11/11 06:40		253001	
Chloromethane	5000	U	5000	240	1000	NA	7/11/11 06:40		253001	
Cyclohexane	10000	U	10000	240	1000	NA	7/11/11 06:40		253001	
Dibromochloromethane	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	7/11/11 06:40		253001	
Dichloromethane	5000	U	5000	220	1000	NA	7/11/11 06:40		253001	
Ethylbenzene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Methyl Acetate	10000	U	10000	230	1000	NA	7/11/11 06:40		253001	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 1045
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-BW0003E-052.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Methylcyclohexane	10000	U	10000	250	1000	NA	7/11/11 06:40		253001	
Styrene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Toluene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Trichloroethene (TCE)	**980**	J	5000	230	1000	NA	7/11/11 06:40		253001	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
Vinyl Chloride	5000	U	5000	230	1000	NA	7/11/11 06:40		253001	
cis-1,2-Dichloroethene	**1300**	J	5000	200	1000	NA	7/11/11 06:40		253001	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
m,p-Xylenes	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
n-Butyl Acetate	**1500000**	D	50000	2100	10000	NA	7/11/11 19:08		253085	
o-Xylene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
trans-1,2-Dichloroethene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	7/11/11 06:40		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	7/11/11 06:40	
Dibromofluoromethane	103	89-119	7/11/11 06:40	
Toluene-d8	107	87-121	7/11/11 06:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0930
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-RW0007-038.5-20110707		
Lab Code:	R1103812-010	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**17.4**		mg/L	1.0	10	NA	7/26/11 15:00	
Iodide	300.0	**2.1**		mg/L	2.0	10	NA	7/13/11 02:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0930
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-RW0007-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	46	200	NA	7/11/11 07:11		253001	
1,1,2,2-Tetrachloroethane	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
1,1,2-Trichloroethane	1000	U	1000	46	200	NA	7/11/11 07:11		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	**13000**		1000	62	200	NA	7/11/11 07:11		253001	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	58	200	NA	7/11/11 07:11		253001	
1,2,4-Trichlorobenzene	1000	U	1000	52	200	NA	7/11/11 07:11		253001	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	200	NA	7/11/11 07:11		253001	
1,2-Dibromoethane	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
1,2-Dichlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
1,2-Dichloroethane	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
1,2-Dichloropropane	1000	U	1000	57	200	NA	7/11/11 07:11		253001	
1,3-Dichlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
1,4-Dichlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
n-Butanol	**140000**		50000	2100	200	NA	7/11/11 07:11		253001	
2-Butanone (MEK)	2000	U	2000	110	200	NA	7/11/11 07:11		253001	
2-Hexanone	2000	U	2000	70	200	NA	7/11/11 07:11		253001	
4-Methyl-2-pentanone	2000	U	2000	54	200	NA	7/11/11 07:11		253001	
Acetone	4000	U	4000	200	200	NA	7/11/11 07:11		253001	
Benzene	1000	U	1000	42	200	NA	7/11/11 07:11		253001	
Bromodichloromethane	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Bromoform	1000	U	1000	54	200	NA	7/11/11 07:11		253001	
Bromomethane	1000	U	1000	62	200	NA	7/11/11 07:11		253001	
Carbon Disulfide	2000	U	2000	40	200	NA	7/11/11 07:11		253001	
Carbon Tetrachloride	1000	U	1000	54	200	NA	7/11/11 07:11		253001	
Chlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Chloroethane	1000	U	1000	62	200	NA	7/11/11 07:11		253001	
Chloroform	1000	U	1000	44	200	NA	7/11/11 07:11		253001	
Chloromethane	1000	U	1000	48	200	NA	7/11/11 07:11		253001	
Cyclohexane	2000	U	2000	48	200	NA	7/11/11 07:11		253001	
Dibromochloromethane	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	120	200	NA	7/11/11 07:11		253001	
Dichloromethane	1000	U	1000	44	200	NA	7/11/11 07:11		253001	
Ethylbenzene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Isopropylbenzene (Cumene)	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Methyl Acetate	**82**	J	2000	46	200	NA	7/11/11 07:11		253001	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0930
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-RW0007-038.5-20110707	**Units:**	µg/L
Lab Code:	R1103812-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Methylcyclohexane	2000	U	2000	50	200	NA	7/11/11 07:11		253001	
Styrene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Tetrachloroethene (PCE)	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Toluene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Trichloroethene (TCE)	**21000**		1000	46	200	NA	7/11/11 07:11		253001	
Trichlorofluoromethane (CFC 11)	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
Vinyl Chloride	**690**	J	1000	46	200	NA	7/11/11 07:11		253001	
cis-1,2-Dichloroethene	**20000**		1000	40	200	NA	7/11/11 07:11		253001	
cis-1,3-Dichloropropene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
m,p-Xylenes	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
n-Butyl Acetate	**410000**	D	13000	530	2500	NA	7/12/11 18:38		253196	
o-Xylene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	
trans-1,2-Dichloroethene	**150**	J	1000	40	200	NA	7/11/11 07:11		253001	
trans-1,3-Dichloropropene	1000	U	1000	40	200	NA	7/11/11 07:11		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	7/11/11 07:11	
Dibromofluoromethane	106	89-119	7/11/11 07:11	
Toluene-d8	106	87-121	7/11/11 07:11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0905
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-RW0008-052.0-20110707		
Lab Code:	R1103812-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**4.8**		mg/L	1.0	10	NA	7/26/11 14:18	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	7/13/11 02:18	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0905
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-RW0008-052.0-20110707	**Units:**	µg/L
Lab Code:	R1103812-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	46	200	NA	7/11/11 07:41		253001	
1,1,2,2-Tetrachloroethane	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
1,1,2-Trichloroethane	1000	U	1000	46	200	NA	7/11/11 07:41		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	1000	U	1000	62	200	NA	7/11/11 07:41		253001	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	58	200	NA	7/11/11 07:41		253001	
1,2,4-Trichlorobenzene	1000	U	1000	52	200	NA	7/11/11 07:41		253001	
1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	200	NA	7/11/11 07:41		253001	
1,2-Dibromoethane	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
1,2-Dichlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
1,2-Dichloroethane	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
1,2-Dichloropropane	1000	U	1000	57	200	NA	7/11/11 07:41		253001	
1,3-Dichlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
1,4-Dichlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
n-Butanol	**8700**	J	50000	2100	200	NA	7/11/11 07:41		253001	
2-Butanone (MEK)	2000	U	2000	110	200	NA	7/11/11 07:41		253001	
2-Hexanone	2000	U	2000	70	200	NA	7/11/11 07:41		253001	
4-Methyl-2-pentanone	2000	U	2000	54	200	NA	7/11/11 07:41		253001	
Acetone	4000	U	4000	200	200	NA	7/11/11 07:41		253001	
Benzene	1000	U	1000	42	200	NA	7/11/11 07:41		253001	
Bromodichloromethane	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Bromoform	1000	U	1000	54	200	NA	7/11/11 07:41		253001	
Bromomethane	1000	U	1000	62	200	NA	7/11/11 07:41		253001	
Carbon Disulfide	2000	U	2000	40	200	NA	7/11/11 07:41		253001	
Carbon Tetrachloride	1000	U	1000	54	200	NA	7/11/11 07:41		253001	
Chlorobenzene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Chloroethane	1000	U	1000	62	200	NA	7/11/11 07:41		253001	
Chloroform	1000	U	1000	44	200	NA	7/11/11 07:41		253001	
Chloromethane	1000	U	1000	48	200	NA	7/11/11 07:41		253001	
Cyclohexane	2000	U	2000	48	200	NA	7/11/11 07:41		253001	
Dibromochloromethane	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Dichlorodifluoromethane (CFC 12)	1000	U	1000	120	200	NA	7/11/11 07:41		253001	
Dichloromethane	1000	U	1000	44	200	NA	7/11/11 07:41		253001	
Ethylbenzene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Isopropylbenzene (Cumene)	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Methyl Acetate	2000	U	2000	46	200	NA	7/11/11 07:41		253001	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	7/ 7/11 0905
Sample Matrix:	Water	**Date Received:**	7/ 8/11
Sample Name:	LC34-RW0008-052.0-20110707	**Units:**	µg/L
Lab Code:	R1103812-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Methylcyclohexane	2000	U	2000	50	200	NA	7/11/11 07:41		253001	
Styrene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Tetrachloroethene (PCE)	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Toluene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Trichloroethene (TCE)	**1100**		1000	46	200	NA	7/11/11 07:41		253001	
Trichlorofluoromethane (CFC 11)	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
Vinyl Chloride	**140**	J	1000	46	200	NA	7/11/11 07:41		253001	
cis-1,2-Dichloroethene	**4000**		1000	40	200	NA	7/11/11 07:41		253001	
cis-1,3-Dichloropropene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
m,p-Xylenes	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
n-Butyl Acetate	**81000**	D	2500	110	500	NA	7/11/11 20:09		253085	
o-Xylene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
trans-1,2-Dichloroethene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	
trans-1,3-Dichloropropene	1000	U	1000	40	200	NA	7/11/11 07:41		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	7/11/11 07:41	
Dibromofluoromethane	104	89-119	7/11/11 07:41	
Toluene-d8	107	87-121	7/11/11 07:41	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103812-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	7/25/11 21:13	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/12/11 17:47	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103812-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	7/26/11 10:40	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/12/11 21:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1103812-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	7/13/11 00:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106692-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253001

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/10/11 23:35		253001	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/10/11 23:35		253001	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/10/11 23:35		253001	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/10/11 23:35		253001	
1,2,4-Trichlorobenzene	**0.31**	J	5.0	0.26	1	NA	7/10/11 23:35		253001	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/10/11 23:35		253001	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/10/11 23:35		253001	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
n-Butanol	250	U	250	11	1	NA	7/10/11 23:35		253001	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/10/11 23:35		253001	
2-Hexanone	10	U	10	0.35	1	NA	7/10/11 23:35		253001	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/10/11 23:35		253001	
Acetone	20	U	20	0.98	1	NA	7/10/11 23:35		253001	
Benzene	5.0	U	5.0	0.21	1	NA	7/10/11 23:35		253001	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Bromoform	5.0	U	5.0	0.27	1	NA	7/10/11 23:35		253001	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/10/11 23:35		253001	
Carbon Disulfide	10	U	10	0.20	1	NA	7/10/11 23:35		253001	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/10/11 23:35		253001	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/10/11 23:35		253001	
Chloroform	5.0	U	5.0	0.22	1	NA	7/10/11 23:35		253001	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/10/11 23:35		253001	
Cyclohexane	10	U	10	0.24	1	NA	7/10/11 23:35		253001	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/10/11 23:35		253001	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/10/11 23:35		253001	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Methyl Acetate	10	U	10	0.23	1	NA	7/10/11 23:35		253001	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106692-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253001

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Methylcyclohexane	10	U	10	0.25	1	NA	7/10/11 23:35		253001	
Styrene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Toluene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/10/11 23:35		253001	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/10/11 23:35		253001	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/10/11 23:35		253001	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/10/11 23:35		253001	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/10/11 23:35	
Dibromofluoromethane	103	89-119	7/10/11 23:35	
Toluene-d8	104	87-121	7/10/11 23:35	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106755-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/11/11 12:44		253085	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/11/11 12:44		253085	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/11/11 12:44		253085	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/11/11 12:44		253085	
1,2,4-Trichlorobenzene	**0.35**	J	5.0	0.26	1	NA	7/11/11 12:44		253085	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/11/11 12:44		253085	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/11/11 12:44		253085	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
n-Butanol	250	U	250	11	1	NA	7/11/11 12:44		253085	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/11/11 12:44		253085	
2-Hexanone	10	U	10	0.35	1	NA	7/11/11 12:44		253085	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/11/11 12:44		253085	
Acetone	**1.0**	J	20	0.98	1	NA	7/11/11 12:44		253085	
Benzene	5.0	U	5.0	0.21	1	NA	7/11/11 12:44		253085	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Bromoform	5.0	U	5.0	0.27	1	NA	7/11/11 12:44		253085	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/11/11 12:44		253085	
Carbon Disulfide	10	U	10	0.20	1	NA	7/11/11 12:44		253085	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/11/11 12:44		253085	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/11/11 12:44		253085	
Chloroform	**0.46**	J	5.0	0.22	1	NA	7/11/11 12:44		253085	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/11/11 12:44		253085	
Cyclohexane	10	U	10	0.24	1	NA	7/11/11 12:44		253085	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/11/11 12:44		253085	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/11/11 12:44		253085	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Methyl Acetate	10	U	10	0.23	1	NA	7/11/11 12:44		253085	

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1106755-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C **Analysis Lot:** 253085

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Methylcyclohexane	10	U	10	0.25	1	NA	7/11/11 12:44		253085	
Styrene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Toluene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/11/11 12:44		253085	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/11/11 12:44		253085	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/11/11 12:44		253085	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/11/11 12:44		253085	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	7/11/11 12:44	
Dibromofluoromethane	106	89-119	7/11/11 12:44	
Toluene-d8	106	87-121	7/11/11 12:44	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1103812
Project:	ESTCP PED LC34 TR0272	**Date Analyzed:**	7/12/11 - 7/25/11
Sample Matrix:	Water		

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1103812-LCS1			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Bromide	300.0	1.07	1.00	107	90 - 110
Iodide	300.0	0.958	1.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1103812
Date Analyzed: 7/12/11 - 7/26/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103812-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.02	1.00	102	90 - 110
Iodide	300.0	0.966	1.00	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1103812
Date Analyzed: 7/13/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1103812-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Iodide	300.0	0.988	1.00	99	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1103812
Date Analyzed: 7/10/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 253001

Analyte Name	Lab Control Sample RQ1106692-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	15.9	20.0	79	72 - 128
1,1,2,2-Tetrachloroethane	18.1	20.0	91	72 - 131
1,1,2-Trichloroethane	19.9	20.0	99	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.8	20.0	89	68 - 136
1,1-Dichloroethane (1,1-DCA)	18.2	20.0	91	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.0	20.0	90	72 - 129
1,2,4-Trichlorobenzene	21.0	20.0	105	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	23.7	20.0	119	62 - 131
1,2-Dibromoethane	19.9	20.0	99	78 - 125
1,2-Dichlorobenzene	19.0	20.0	95	79 - 124
1,2-Dichloroethane	16.1	20.0	81	73 - 127
1,2-Dichloropropane	18.4	20.0	92	80 - 123
1,3-Dichlorobenzene	19.4	20.0	97	78 - 124
1,4-Dichlorobenzene	19.0	20.0	95	78 - 123
n-Butanol	1190	1000	119	70 - 130
2-Butanone (MEK)	23.5	20.0	118	60 - 133
2-Hexanone	21.6	20.0	108	61 - 131
4-Methyl-2-pentanone	21.2	20.0	106	61 - 132
Acetone	23.3	20.0	116	54 - 139
Benzene	18.1	20.0	90	78 - 121
Bromodichloromethane	18.0	20.0	90	80 - 125
Bromoform	21.4	20.0	107	68 - 130
Bromomethane	19.5	20.0	97	57 - 144
Carbon Disulfide	18.0	20.0	90	52 - 140
Carbon Tetrachloride	17.3	20.0	87	68 - 133
Chlorobenzene	19.1	20.0	95	80 - 121
Chloroethane	19.4	20.0	97	71 - 130
Chloroform	16.4	20.0	82	78 - 125
Chloromethane	20.6	20.0	103	61 - 138
Cyclohexane	17.7	20.0	89	57 - 126
Dibromochloromethane	20.3	20.0	102	78 - 133
Dichlorodifluoromethane (CFC 12)	19.7	20.0	99	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1103812
Date Analyzed: 7/10/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 253001

Analyte Name	Lab Control Sample RQ1106692-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.6	20.0	93	75 - 125
Ethylbenzene	18.2	20.0	91	78 - 123
Isopropylbenzene (Cumene)	20.9	20.0	104	73 - 133
Methyl Acetate	18.2	20.0	91	57 - 157
Methyl tert-Butyl Ether	18.4	20.0	92	75 - 126
Methylcyclohexane	18.9	20.0	95	61 - 125
Styrene	19.1	20.0	95	80 - 132
Tetrachloroethene (PCE)	19.3	20.0	97	72 - 131
Toluene	18.0	20.0	90	78 - 122
Trichloroethene (TCE)	20.7	20.0	104	74 - 127
Trichlorofluoromethane (CFC 11)	17.4	20.0	87	69 - 141
Vinyl Chloride	20.9	20.0	105	72 - 138
cis-1,2-Dichloroethene	17.9	20.0	89	78 - 122
cis-1,3-Dichloropropene	17.3	20.0	87	77 - 125
m,p-Xylenes	38.5	40.0	96	79 - 126
n-Butyl Acetate	19.9	20.0	100	31 - 144
o-Xylene	18.5	20.0	93	77 - 118
trans-1,2-Dichloroethene	18.2	20.0	91	75 - 121
trans-1,3-Dichloropropene	17.6	20.0	88	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1103812
Date Analyzed: 7/11/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 253085

Lab Control Sample
RQ1106755-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.2	20.0	91	72 - 128
1,1,2,2-Tetrachloroethane	21.4	20.0	107	72 - 131
1,1,2-Trichloroethane	22.0	20.0	110	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.5	20.0	102	68 - 136
1,1-Dichloroethane (1,1-DCA)	21.1	20.0	105	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.7	20.0	104	72 - 129
1,2,4-Trichlorobenzene	23.7	20.0	118	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	23.4	20.0	117	62 - 131
1,2-Dibromoethane	20.8	20.0	104	78 - 125
1,2-Dichlorobenzene	21.5	20.0	107	79 - 124
1,2-Dichloroethane	17.9	20.0	90	73 - 127
1,2-Dichloropropane	21.2	20.0	106	80 - 123
1,3-Dichlorobenzene	22.4	20.0	112	78 - 124
1,4-Dichlorobenzene	21.6	20.0	108	78 - 123
n-Butanol	1180	1000	117	70 - 130
2-Butanone (MEK)	22.3	20.0	111	60 - 133
2-Hexanone	20.7	20.0	103	61 - 131
4-Methyl-2-pentanone	22.2	20.0	111	61 - 132
Acetone	23.1	20.0	115	54 - 139
Benzene	21.2	20.0	106	78 - 121
Bromodichloromethane	20.4	20.0	102	80 - 125
Bromoform	23.2	20.0	116	68 - 130
Bromomethane	22.6	20.0	113	57 - 144
Carbon Disulfide	25.8	20.0	129	52 - 140
Carbon Tetrachloride	18.3	20.0	91	68 - 133
Chlorobenzene	21.6	20.0	108	80 - 121
Chloroethane	21.8	20.0	109	71 - 130
Chloroform	19.0	20.0	95	78 - 125
Chloromethane	24.0	20.0	120	61 - 138
Cyclohexane	20.5	20.0	103	57 - 126
Dibromochloromethane	22.5	20.0	113	78 - 133
Dichlorodifluoromethane (CFC 12)	22.4	20.0	112	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1103812
Date Analyzed: 7/11/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 253085

Analyte Name	Lab Control Sample RQ1106755-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.9	20.0	110	75 - 125
Ethylbenzene	21.2	20.0	106	78 - 123
Isopropylbenzene (Cumene)	24.4	20.0	122	73 - 133
Methyl Acetate	19.1	20.0	95	57 - 157
Methyl tert-Butyl Ether	20.1	20.0	100	75 - 126
Methylcyclohexane	23.5	20.0	117	61 - 125
Styrene	21.9	20.0	109	80 - 132
Tetrachloroethene (PCE)	21.3	20.0	106	72 - 131
Toluene	20.6	20.0	103	78 - 122
Trichloroethene (TCE)	21.4	20.0	107	74 - 127
Trichlorofluoromethane (CFC 11)	19.7	20.0	99	69 - 141
Vinyl Chloride	23.7	20.0	119	72 - 138
cis-1,2-Dichloroethene	21.1	20.0	105	78 - 122
cis-1,3-Dichloropropene	20.2	20.0	101	77 - 125
m,p-Xylenes	44.1	40.0	110	79 - 126
n-Butyl Acetate	20.9	20.0	104	31 - 144
o-Xylene	21.1	20.0	106	77 - 118
trans-1,2-Dichloroethene	20.5	20.0	103	75 - 121
trans-1,3-Dichloropropene	20.4	20.0	102	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	Analysis Requested: Bromide and Iodide (300.0)	REMARKS
LC34-BW0001C-038.5-20110707	7/7/2011	0900	-001	GW	4	3	1	
LC34-BW0001D-045.5-20110707	7/7/2011	0932	-002	GW	~~3~~ 4	~~2~~ 3	1	
LC34-BW0001E-052.5-20110707	7/7/2011	1002	-003	GW	4	3	1	
LC34-BW0002C-038.5-20110707	7/7/2011	1042	-004	GW	4	3	1	
LC34-BW0002D-045.5-20110707	7/7/2011	1135	-005	GW	4	3	1	
LC34-BW0002E-052.5-20110707	7/7/2011	1110	-006	GW	4	3	1	
LC34-BW0003C-038.5-20110707	7/7/2011	0955	-007	GW	4	3	1	
LC34-BW0003D-045.5-20110707	7/7/2011	1020	-008	GW	4	3	1	
LC34-BW0003E-052.5-20110707	7/7/2011	1045	-009	GW	4	3	1	
LC34-RW0007-038.5-20110707	7/7/2011	0930	-010	GW	4	3	1	
LC34-RW0008-052.0-20110707	7/7/2011	0905	-011	GW	4	3	1	

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

* Corrected chain sent: 11:10 BB 7/8/11

R1103812
GeoSyntec Consultants
ESTCP PED LC34 TR0272

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:

Signature:

Printed Name: Joseph Bartlett

Firm: GeoSyntec

Date/Time: 7/7/11 1600

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: Christine M Lintzer

Printed Name: Christine M Lintzer

Firm: CAS

Date/Time: 7/8/11 0930

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R11-3812

Cooler received on 7/8/11 by: cmk COURIER: CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were Ice or Ice packs present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC,)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	3.0°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 7/8/11 0948

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: Temp Blank (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 8/3/11

Cooler Breakdown: Date: 7/8/11 Time: 1146 by: DM

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated	(N/A)	

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis -- pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 053011-2V, 0-319-005

Other Comments: _____

C Secondary Review: KB 8/3/11

*significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

August 31, 2011 Service Request No: R1104260

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC24 TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on August 2, 2011. For your reference, these analyses have been assigned our service request number **R1104260**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

00001

Client:	Geosyntec	**Service Request No.:**	R1104260
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	8/2/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Twenty-nine (29) water samples were collected by the client on 8/1/11 and were received for analysis at Columbia Analytical Services on 8/2/11 via a national courier The samples were received at a cooler temperature range of 2.5-4.0°C within the guidelines of 0-6°C. Bubbles were noted in several VOC vials, however in each case at least 1 of the 3 vials for each sample was bubble free. Six samples for Sulfide and Alkalinity also contained bubbles in the bottles. All are noted on the Cooler Receipt and Preservation Check Form at the end of the report. Location LC34-BW0001C-038.5-20110801 (R1104260-017) requested RSK-175, however no vials were received for this location for this analysis. A VOC vial was used to run this analysis.

Organic Compounds

Nineteen (19) water samples including one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C. Fourteen (14) samples were also analyzed for Organic Acids by HPLC. Thirteen (13) locations were analyzed for GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples for 8260C except the Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Bromomethane on the 8/4/11 analytical run and 1,2,4-Trichlorobenzene (32.2%) and MEK (-22.5%)on the 8/5/11 run. All detected concentrations for these compounds in samples associated with these CCV should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Site specific QC is included in the report for locations LC34-IW0002D1-052.5-20110801 (CAS #R1104260-009) for 8260C, LC34-IW0002I-027.5-20110801 (CAS # R1104260-005) for Organic Acids, and LC34-IW0002D-037.5-2011080 (CAS #R1104260-007) for RSK-175. All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within limits except for 1,2,4-Trichlorobenzene (outside limits high) and cis-1,2-Dichloroethene. All Relative Percent Difference (RPD) calculations were acceptable. The Laboratory Control Samples (LCS) and LCS Duplicate (RSK & Organic Acids) recoveries were all within QC limits except for 1,2,4-Trichlorobenzene which was outside limits high on the 8/5/11 run. The exceedences have been flagged as "*". The Acetic Acid and Butanoic Acid recoveries are flagged as "#". The sample was spiked too low for these compounds (<4X the concentration in the sample) to accurately determine the recoveries.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were initially analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. The RSK-175 samples were analyzed within 14 days of collection for preserved samples. Location -017 was analyzed out of the holding time for unpreserved samples since a VOC vial was used for this analysis as noted above. Organic Acids were analyzed within the proper holding time.

Approved by Karen Burdick **Date** 9/1/11

The Laboratory Method Blanks were free from contamination except for Acetone which contained a low level hit on the 8/5/1113:34 analytical run and n-Butanol on the 8/5/11 12:11 run. Any affected data is flagged as "B" in the report.

For the RSK analysis, there was a slight shift in Retention Time (RT) and poor peak shape (very broad instead of Gaussian) for ethane during the analysis of these samples. It appears that coelution is occurring, but we don't have the ability to differentiate between ethane and the co-eluting compound. The Ethane results may be biased high.

The Primary Standard mix for RSK expired on 8/6/11. The Secondary Standard mix expired on 8/9/11. Both standards have shown little to no degradation over the past year. New standards have been ordered but not yet received.

No other analytical or QC problems were encountered.

Inorganic Parameters

Fourteen (14) water samples were analyzed for Bromide and Iodide by IC method 300.0 and dissolved ICP Metals. Thirteen (13) samples were analyzed for TOC by method 9060A. Twelve (12) of the samples were analyzed for Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0 The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Site QC is included in the report for locations LC34-RW0008-052.0-20110801 (CAS #R1104260-003) TOC, LC34-BW0001E-052.5-2011081 (CAS #R1104260-021) Iodide and Alkalinity, and LC34-BW0001F-059.5-20110801 (CAS# R1104260-023) Anions and LC34-BW0001B-031.5-20110801 (CAS #R1104260-016) Dissolved Metals. All Matrix Spike (MS) recoveries were within QC acceptance limits. All Relative Percent Difference (RPD) calculations were acceptable. All Laboratory Control Sample (LCS) recoveries were within QC limits.

All holding times were met for these analyses for the initial analysis. Eleven (11) Nitrite samples required reanalysis due to high Chloride concentrations which caused interferences on the initial run. The samples were repeated outside the 48 hour holding time ranging from approximately 1-10 hours. The affected sample data is flagged as "*".

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burke **Date** 9/1/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1104260

Lab ID	Client ID
R1104260-001	LC34-RW0007-038.5-20110801
R1104260-002	LC34-RW0007-038.5-20110801 Dissolved
R1104260-003	LC34-RW0008-052.0-20110801
R1104260-004	LC34-RW0008-052.0-20110801 Dissolved
R1104260-005	LC34-IW0002I-027.5-20110801
R1104260-006	LC34-IW0002I-027.5-20110801 Dissolved
R1104260-007	LC34-IW0002D-037.5-20110801
R1104260-008	LC34-IW0002D-037.5-20110801 Dissolved
R1104260-009	LC34-IW0002D1-052.5-20110801
R1104260-010	LC34-IW0002D1-052.5-20110801 Dissolved
R1104260-011	LC34-IW0076-075.0-20110801
R1104260-012	LC34-IW0076-075.0-20110801 Dissolved
R1104260-013	LC34-BW0001A-024.5-20110801
R1104260-014	LC34-BW0001A-024.5-20110801 Dissolved
R1104260-015	LC34-BW0001B-031.5-20110801
R1104260-016	LC34-BW0001B-031.5-20110801 Dissolved
R1104260-017	LC34-BW0001C-038.5-20110801
R1104260-018	LC34-BW0001C-038.5-20110801 Dissolved
R1104260-019	LC34-BW0001D-045.5-20110801
R1104260-020	LC34-BW0001D-045.5-20110801 Dissolved
R1104260-021	LC34-BW0001E-052.5-20110801
R1104260-022	LC34-BW0001E-052.5-20110801 Dissolved
R1104260-023	LC34-BW0001F-059.5-20110801
R1104260-024	LC34-BW0001F-059.5-20110801 Dissolved
R1104260-025	LC34-RW0007-038.5-20110801-D
R1104260-026	LC34-IW0002I-027.5-20110801-D
R1104260-027	LC34-IW0002D-037.5-20110801-D
R1104260-028	LC34-BW0001B-031.5-20110801-D
R1104260-029	LC34-BW0001D-045.5-20110801-D
R1104260-030	LC34-RW0008-052.0-20110801-D
R1104260-031	LC34-IW0002D1-052.5-20110801-D
R1104260-032	LC34-IW0002D1-052.5-20110801-D Dissolved
R1104260-033	LC34-FD-20110801-01
R1104260-034	LC34-FD-20110801-03
R1104260-035	LC34-FD-20110801-04
R1104260-036	LC34-FD-20110801-05
R1104260-037	LC34-FD-20110801-06
R1104260-038	LC34-FD-20110801-09
R1104260-039	LC34-FD-20110801-02
R1104260-040	LC34-FD-20110801-07
R1104260-041	LC34-FD-20110801-08 Dissolved
R1104260-042	LC34-TB-20110801

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0007-038.5-20110801		
Lab Code:	R1104260-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**510**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**27.7**		mg/L	1.0	10	NA	8/2/11 13:45	
Carbon, Total Organic (TOC), Average	9060A	**327**		mg/L	20	20	NA	8/11/11 18:30	
Chloride	300.0	**519**		mg/L	20	100	NA	8/3/11 13:43	
Iodide	300.0	**2.3**		mg/L	2.0	10	NA	8/16/11 11:28	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 13:45	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/3/11 13:43	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/2/11 13:45	
Sulfide, Total	SM 4500-S2- F	**1.7**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0007-038.5-20110801 Dissolved		
Lab Code:	R1104260-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:05	
Iron, Dissolved	6010C	**880**		µg/L	100	1	8/ 7/11	8/13/11 02:05	
Manganese, Dissolved	6010C	**91**		µg/L	10	1	8/ 7/11	8/13/11 02:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 13:24
Sample Name:	LC34-RW0007-038.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2623.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	58	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	50	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**2900**		1300	78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	
106-93-4	1,2-Dibromoethane	1300	U	1300	50	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	50	
107-06-2	1,2-Dichloroethane	1300	U	1300	50	
78-87-5	1,2-Dichloropropane	1300	U	1300	70	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	50	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	50	
71-36-3	n-Butanol	**180000**		63000	2700	
78-93-3	2-Butanone (MEK)	2500	U	2500	130	
591-78-6	2-Hexanone	2500	U	2500	88	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	68	
67-64-1	Acetone	5000	U	5000	250	
71-43-2	Benzene	1300	U	1300	53	
75-27-4	Bromodichloromethane	1300	U	1300	50	
75-25-2	Bromoform	1300	U	1300	68	
74-83-9	Bromomethane	1300	U	1300	78	
75-15-0	Carbon Disulfide	2500	U	2500	50	
56-23-5	Carbon Tetrachloride	1300	U	1300	68	
108-90-7	Chlorobenzene	1300	U	1300	50	
75-00-3	Chloroethane	1300	U	1300	78	
67-66-3	Chloroform	1300	U	1300	55	
74-87-3	Chloromethane	1300	U	1300	60	
110-82-7	Cyclohexane	2500	U	2500	60	
124-48-1	Dibromochloromethane	1300	U	1300	50	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	
75-09-2	Dichloromethane	1300	U	1300	55	
100-41-4	Ethylbenzene	1300	U	1300	50	
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 13:24
Sample Name:	LC34-RW0007-038.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2623.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	2500	U	2500	58	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	50	
108-87-2	Methylcyclohexane	2500	U	2500	63	
100-42-5	Styrene	1300	U	1300	50	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	50	
108-88-3	Toluene	1300	U	1300	50	
79-01-6	Trichloroethene (TCE)	**2400**		1300	58	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	50	
75-01-4	Vinyl Chloride	**770**	J	1300	58	
156-59-2	cis-1,2-Dichloroethene	**31000**		1300	50	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	50	
179601-23-1	m,p-Xylenes	1300	U	1300	50	
123-86-4	n-Butyl Acetate	1300	U	1300	53	
95-47-6	o-Xylene	1300	U	1300	50	
156-60-5	trans-1,2-Dichloroethene	**130**	J	1300	50	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/5/11 13:24	
Dibromofluoromethane	104	89-119	8/5/11 13:24	
Toluene-d8	107	87-121	8/5/11 13:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/9/11 13:36
Sample Name:	LC34-RW0007-038.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257087
Data File Name:	star795.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**61**		1.0	
74-85-1	Ethene	**9.8**		1.0	
74-82-8	Methane	**35**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/15/11 22:27
Sample Name:	LC34-RW0007-038.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006086.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**350**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**230**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	**5.2**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 0954
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0008-052.0-20110801		
Lab Code:	R1104260-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**279**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**4.8**		mg/L	1.0	10	NA	8/2/11 16:17	
Carbon, Total Organic (TOC), Average	9060A	**73.1**		mg/L	5.0	5	NA	8/9/11 19:20	
Chloride	300.0	**602**		mg/L	40	200	NA	8/3/11 16:48	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 11:37	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 16:17	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	8/3/11 16:48	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/2/11 16:17	
Sulfide, Total	SM 4500-S2- F	**2.9**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 0954
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0008-052.0-20110801 Dissolved		
Lab Code:	R1104260-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:23	
Iron, Dissolved	6010C	**690**		µg/L	100	1	8/ 7/11	8/13/11 02:23	
Manganese, Dissolved	6010C	**86**		µg/L	10	1	8/ 7/11	8/13/11 02:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 0954
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0008-052.0-20110801	**Units:**	µg/L
Lab Code:	R1104260-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/5/11 12:47		256234	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	8/5/11 12:47		256234	
1,1,2-Trichloro-1,2,2-trifluoroethane	**3.2**	J	5.0	0.31	1	NA	8/5/11 12:47		256234	
1,1-Dichloroethane (1,1-DCA)	**1.0**	J	5.0	0.20	1	NA	8/5/11 12:47		256234	
1,1-Dichloroethene (1,1-DCE)	**0.30**	J	5.0	0.29	1	NA	8/5/11 12:47		256234	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	8/5/11 12:47		256234	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	8/5/11 12:47		256234	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	8/5/11 12:47		256234	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
n-Butanol	**63**	BJ	250	11	1	NA	8/5/11 12:47		256234	
2-Butanone (MEK)	10	U	10	0.51	1	NA	8/5/11 12:47		256234	
2-Hexanone	10	U	10	0.35	1	NA	8/5/11 12:47		256234	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	8/5/11 12:47		256234	
Acetone	**1.8**	J	20	0.98	1	NA	8/5/11 12:47		256234	
Benzene	5.0	U	5.0	0.21	1	NA	8/5/11 12:47		256234	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Bromoform	5.0	U	5.0	0.27	1	NA	8/5/11 12:47		256234	
Bromomethane	5.0	U	5.0	0.31	1	NA	8/5/11 12:47		256234	
Carbon Disulfide	**4.5**	J	10	0.20	1	NA	8/5/11 12:47		256234	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	8/5/11 12:47		256234	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Chloroethane	5.0	U	5.0	0.31	1	NA	8/5/11 12:47		256234	
Chloroform	5.0	U	5.0	0.22	1	NA	8/5/11 12:47		256234	
Chloromethane	5.0	U	5.0	0.24	1	NA	8/5/11 12:47		256234	
Cyclohexane	10	U	10	0.24	1	NA	8/5/11 12:47		256234	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	8/5/11 12:47		256234	
Dichloromethane	5.0	U	5.0	0.22	1	NA	8/5/11 12:47		256234	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Methyl Acetate	10	U	10	0.23	1	NA	8/5/11 12:47		256234	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 0954
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0008-052.0-20110801	**Units:**	µg/L
Lab Code:	R1104260-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Methylcyclohexane	10	U	10	0.25	1	NA	8/5/11 12:47		256234	
Styrene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Toluene	**0.21**	J	5.0	0.20	1	NA	8/5/11 12:47		256234	
Trichloroethene (TCE)	**3.5**	J	5.0	0.23	1	NA	8/5/11 12:47		256234	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
Vinyl Chloride	**2600**	D	100	4.7	20	NA	8/5/11 14:01		256234	
cis-1,2-Dichloroethene	**55**		5.0	0.20	1	NA	8/5/11 12:47		256234	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
n-Butyl Acetate	**4.0**	J	5.0	0.21	1	NA	8/5/11 12:47		256234	
o-Xylene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	
trans-1,2-Dichloroethene	**19**		5.0	0.20	1	NA	8/5/11 12:47		256234	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/5/11 12:47		256234	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	8/5/11 12:47	
Dibromofluoromethane	102	89-119	8/5/11 12:47	
Toluene-d8	110	87-121	8/5/11 12:47	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 0954
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0008-052.0-20110801	**Units:**	µg/L
Lab Code:	R1104260-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**16**		1.0	1	NA	8/9/11 13:47		257087	
Ethene	**310**	D	5.0	5	NA	8/9/11 13:58		257087	
Methane	**30**		2.0	1	NA	8/9/11 13:47		257087	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 0954
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/12/11 21:38
Sample Name:	LC34-RW0008-052.0-20110801	**Units:**	mg/L
Lab Code:	R1104260-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257191
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081211\X0006044.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**130**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**28**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.1**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002I-027.5-20110801		
Lab Code:	R1104260-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**632**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**34.8**		mg/L	3.0	30	NA	8/3/11 14:54	
Carbon, Total Organic (TOC), Average	9060A	**487**		mg/L	30	30	NA	8/11/11 19:10	
Chloride	300.0	**138**		mg/L	6.0	30	NA	8/3/11 14:54	
Iodide	300.0	**44.5**		mg/L	2.0	10	NA	8/16/11 11:45	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 15:36	
Nitrite as Nitrogen	300.0	3.0	U	mg/L	3.0	30	NA	8/3/11 14:54	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/2/11 15:36	
Sulfide, Total	SM 4500-S2- F	**1.3**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002I-027.5-20110801 Dissolved		
Lab Code:	R1104260-006	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:29	
Iron, Dissolved	6010C	**3500**		µg/L	100	1	8/ 7/11	8/13/11 02:29	
Manganese, Dissolved	6010C	**126**		µg/L	10	1	8/ 7/11	8/13/11 02:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/8/11 20:52
Sample Name:	LC34-IW0002I-027.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2655.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**9400**		500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	**630000**		25000	1100	
78-93-3	2-Butanone (MEK)	**1400**		1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	**440**	J	2000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	**26**	J	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	1000	U	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	**130**	J	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/8/11 20:52
Sample Name:	LC34-IW0002I-027.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2655.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	1000	U	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	**280**	J	500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**270**	J	500	23	
156-59-2	cis-1,2-Dichloroethene	**13000**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	**11000**		500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**220**	J	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/8/11 20:52	
Dibromofluoromethane	105	89-119	8/8/11 20:52	
Toluene-d8	106	87-121	8/8/11 20:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/9/11 14:11
Sample Name:	LC34-IW0002I-027.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257087
Data File Name:	star798.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**23**		1.0	
74-85-1	Ethene	**7.1**		1.0	
74-82-8	Methane	**44**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/15/11 12:11
Sample Name:	LC34-IW0002I-027.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006076.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**610**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**210**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1315
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D-037.5-20110801		
Lab Code:	R1104260-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**1150**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**9.1**		mg/L	3.0	30	NA	8/3/11 15:37	
Carbon, Total Organic (TOC), Average	9060A	**1130**		mg/L	80	80	NA	8/11/11 21:09	
Chloride	300.0	**352**		mg/L	20	100	NA	8/3/11 15:08	
Iodide	300.0	**41.6**		mg/L	2.0	10	NA	8/16/11 11:54	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 15:49	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/3/11 15:08	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/2/11 15:49	
Sulfide, Total	SM 4500-S2- F	**3.4**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1315
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D-037.5-20110801 Dissolved		
Lab Code:	R1104260-008	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:35	
Iron, Dissolved	6010C	**1590**		µg/L	100	1	8/ 7/11	8/13/11 02:35	
Manganese, Dissolved	6010C	**198**		µg/L	10	1	8/ 7/11	8/13/11 02:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1315
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 15:49
Sample Name:	LC34-IW0002D-037.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2627.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	46	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	40	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	46	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000	U	1000	62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1000	U	1000	58	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	52	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	
106-93-4	1,2-Dibromoethane	1000	U	1000	40	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	40	
107-06-2	1,2-Dichloroethane	1000	U	1000	40	
78-87-5	1,2-Dichloropropane	1000	U	1000	57	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	40	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	40	
71-36-3	n-Butanol	**200000**		50000	2100	
78-93-3	2-Butanone (MEK)	2000	U	2000	110	
591-78-6	2-Hexanone	2000	U	2000	70	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	54	
67-64-1	Acetone	4000	U	4000	200	
71-43-2	Benzene	1000	U	1000	42	
75-27-4	Bromodichloromethane	1000	U	1000	40	
75-25-2	Bromoform	1000	U	1000	54	
74-83-9	Bromomethane	1000	U	1000	62	
75-15-0	Carbon Disulfide	2000	U	2000	40	
56-23-5	Carbon Tetrachloride	1000	U	1000	54	
108-90-7	Chlorobenzene	1000	U	1000	40	
75-00-3	Chloroethane	1000	U	1000	62	
67-66-3	Chloroform	1000	U	1000	44	
74-87-3	Chloromethane	1000	U	1000	48	
110-82-7	Cyclohexane	2000	U	2000	48	
124-48-1	Dibromochloromethane	1000	U	1000	40	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	120	
75-09-2	Dichloromethane	1000	U	1000	44	
100-41-4	Ethylbenzene	1000	U	1000	40	
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	40	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1315
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 15:49
Sample Name:	LC34-IW0002D-037.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2627.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	2000	U	2000	46	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	40	
108-87-2	Methylcyclohexane	2000	U	2000	50	
100-42-5	Styrene	1000	U	1000	40	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	40	
108-88-3	Toluene	1000	U	1000	40	
79-01-6	Trichloroethene (TCE)	**74**	J	1000	46	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	40	
75-01-4	Vinyl Chloride	**2200**		1000	46	
156-59-2	cis-1,2-Dichloroethene	**22000**		1000	40	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	40	
179601-23-1	m,p-Xylenes	1000	U	1000	40	
123-86-4	n-Butyl Acetate	**110**	J	1000	42	
95-47-6	o-Xylene	1000	U	1000	40	
156-60-5	trans-1,2-Dichloroethene	**170**	J	1000	40	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/5/11 15:49	
Dibromofluoromethane	106	89-119	8/5/11 15:49	
Toluene-d8	107	87-121	8/5/11 15:49	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1315
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/9/11 15:58
Sample Name:	LC34-IW0002D-037.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257088
Data File Name:	star804.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**48**		1.0	
74-85-1	Ethene	**28**		1.0	
74-82-8	Methane	**43**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1315
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/15/11 17:19
Sample Name:	LC34-IW0002D-037.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006081.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	5.0	U	5.0	
64-19-7	Acetic Acid	**1100**		10	
107-92-6	Butanoic Acid (Butyric Acid)	**1200**		20	
50-21-5	Lactic Acid	10	U	10	
79-09-4	Propionic Acid	**11**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D1-052.5-20110801		
Lab Code:	R1104260-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**660**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**9.0**		mg/L	3.0	30	NA	8/3/11 17:17	
Carbon, Total Organic (TOC), Average	9060A	**587**		mg/L	40	40	NA	8/11/11 21:49	
Chloride	300.0	**451**		mg/L	40	200	NA	8/3/11 17:03	
Iodide	300.0	**5.1**		mg/L	2.0	10	NA	8/16/11 12:03	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 16:45	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	8/3/11 17:03	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/2/11 16:45	
Sulfide, Total	SM 4500-S2- F	**6.2**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D1-052.5-20110801 Dissolved		
Lab Code:	R1104260-010	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:40	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/ 7/11	8/13/11 02:40	
Manganese, Dissolved	6010C	**60**		µg/L	10	1	8/ 7/11	8/13/11 02:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D1-052.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/3/11 18:54		255971	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	8/3/11 18:54		255971	
1,1,2-Trichloro-1,2,2-trifluoroethane	**520**	D	250	16	50	NA	8/5/11 16:26		256234	
1,1-Dichloroethane (1,1-DCA)	**1.4**	J	5.0	0.20	1	NA	8/3/11 18:54		255971	
1,1-Dichloroethene (1,1-DCE)	**12**		5.0	0.29	1	NA	8/3/11 18:54		255971	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	8/3/11 18:54		255971	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	8/3/11 18:54		255971	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	8/3/11 18:54		255971	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
n-Butanol	**2600**		250	11	1	NA	8/3/11 18:54		255971	
2-Butanone (MEK)	**3.1**	J	10	0.51	1	NA	8/3/11 18:54		255971	
2-Hexanone	10	U	10	0.35	1	NA	8/3/11 18:54		255971	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	8/3/11 18:54		255971	
Acetone	20	U	20	0.98	1	NA	8/3/11 18:54		255971	
Benzene	5.0	U	5.0	0.21	1	NA	8/3/11 18:54		255971	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Bromoform	5.0	U	5.0	0.27	1	NA	8/3/11 18:54		255971	
Bromomethane	5.0	U	5.0	0.31	1	NA	8/3/11 18:54		255971	
Carbon Disulfide	**0.47**	J	10	0.20	1	NA	8/3/11 18:54		255971	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	8/3/11 18:54		255971	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Chloroethane	5.0	U	5.0	0.31	1	NA	8/3/11 18:54		255971	
Chloroform	**1.2**	J	5.0	0.22	1	NA	8/3/11 18:54		255971	
Chloromethane	5.0	U	5.0	0.24	1	NA	8/3/11 18:54		255971	
Cyclohexane	10	U	10	0.24	1	NA	8/3/11 18:54		255971	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	8/3/11 18:54		255971	
Dichloromethane	**0.88**	J	5.0	0.22	1	NA	8/3/11 18:54		255971	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Methyl Acetate	10	U	10	0.23	1	NA	8/3/11 18:54		255971	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D1-052.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Methylcyclohexane	10	U	10	0.25	1	NA	8/3/11 18:54		255971	
Styrene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Toluene	**0.26**	J	5.0	0.20	1	NA	8/3/11 18:54		255971	
Trichloroethene (TCE)	**1300**	D	250	12	50	NA	8/5/11 16:26		256234	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
Vinyl Chloride	**1900**	D	250	12	50	NA	8/5/11 16:26		256234	
cis-1,2-Dichloroethene	**7500**	D	250	10	50	NA	8/5/11 16:26		256234	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
n-Butyl Acetate	**31**		5.0	0.21	1	NA	8/3/11 18:54		255971	
o-Xylene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	
trans-1,2-Dichloroethene	**81**		5.0	0.20	1	NA	8/3/11 18:54		255971	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/3/11 18:54		255971	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	111	85-122	8/3/11 18:54	
Dibromofluoromethane	115	89-119	8/3/11 18:54	
Toluene-d8	114	87-121	8/3/11 18:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D1-052.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-009	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**20**		1.0	1	NA	8/9/11 16:13		257088	
Ethene	**29**		1.0	1	NA	8/9/11 16:13		257088	
Methane	**5600**	D	200	100	NA	8/9/11 17:46		257088	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/15/11 19:22
Sample Name:	LC34-IW0002D1-052.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-009	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006083.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**450**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	10	U	10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**21**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0076-075.0-20110801		
Lab Code:	R1104260-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.2**		mg/L	1.0	10	NA	8/5/11 17:48	
Carbon, Total Organic (TOC), Average	9060A	**3.7**		mg/L	1.0	1	NA	8/9/11 21:20	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 17:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0076-075.0-20110801 Dissolved		
Lab Code:	R1104260-012	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:46	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/ 7/11	8/13/11 02:46	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:46	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0076-075.0-20110801	**Units:**	µg/L
Lab Code:	R1104260-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	10	U	10	0.46	2	NA	8/5/11 17:03		256234	
1,1,2,2-Tetrachloroethane	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
1,1,2-Trichloroethane	10	U	10	0.46	2	NA	8/5/11 17:03		256234	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1.3**	J	10	0.62	2	NA	8/5/11 17:03		256234	
1,1-Dichloroethane (1,1-DCA)	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
1,1-Dichloroethene (1,1-DCE)	10	U	10	0.58	2	NA	8/5/11 17:03		256234	
1,2,4-Trichlorobenzene	10	U	10	0.52	2	NA	8/5/11 17:03		256234	
1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	0.76	2	NA	8/5/11 17:03		256234	
1,2-Dibromoethane	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
1,2-Dichlorobenzene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
1,2-Dichloroethane	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
1,2-Dichloropropane	10	U	10	0.56	2	NA	8/5/11 17:03		256234	
1,3-Dichlorobenzene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
1,4-Dichlorobenzene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
n-Butanol	**200**	J	500	21	2	NA	8/5/11 17:03		256234	
2-Butanone (MEK)	20	U	20	1.1	2	NA	8/5/11 17:03		256234	
2-Hexanone	20	U	20	0.70	2	NA	8/5/11 17:03		256234	
4-Methyl-2-pentanone	20	U	20	0.54	2	NA	8/5/11 17:03		256234	
Acetone	**3.0**	J	40	2.0	2	NA	8/5/11 17:03		256234	
Benzene	10	U	10	0.42	2	NA	8/5/11 17:03		256234	
Bromodichloromethane	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Bromoform	10	U	10	0.54	2	NA	8/5/11 17:03		256234	
Bromomethane	10	U	10	0.62	2	NA	8/5/11 17:03		256234	
Carbon Disulfide	20	U	20	0.40	2	NA	8/5/11 17:03		256234	
Carbon Tetrachloride	10	U	10	0.54	2	NA	8/5/11 17:03		256234	
Chlorobenzene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Chloroethane	10	U	10	0.62	2	NA	8/5/11 17:03		256234	
Chloroform	**0.50**	J	10	0.44	2	NA	8/5/11 17:03		256234	
Chloromethane	10	U	10	0.48	2	NA	8/5/11 17:03		256234	
Cyclohexane	20	U	20	0.48	2	NA	8/5/11 17:03		256234	
Dibromochloromethane	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Dichlorodifluoromethane (CFC 12)	10	U	10	1.2	2	NA	8/5/11 17:03		256234	
Dichloromethane	10	U	10	0.44	2	NA	8/5/11 17:03		256234	
Ethylbenzene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Isopropylbenzene (Cumene)	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Methyl Acetate	20	U	20	0.46	2	NA	8/5/11 17:03		256234	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0076-075.0-20110801	**Units:**	µg/L
Lab Code:	R1104260-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Methylcyclohexane	20	U	20	0.50	2	NA	8/5/11 17:03		256234	
Styrene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Tetrachloroethene (PCE)	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Toluene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Trichloroethene (TCE)	10	U	10	0.46	2	NA	8/5/11 17:03		256234	
Trichlorofluoromethane (CFC 11)	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
Vinyl Chloride	10	U	10	0.46	2	NA	8/5/11 17:03		256234	
cis-1,2-Dichloroethene	**4.0**	J	10	0.40	2	NA	8/5/11 17:03		256234	
cis-1,3-Dichloropropene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
m,p-Xylenes	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
n-Butyl Acetate	**550**	D	25	1.1	5	NA	8/8/11 15:19		256488	
o-Xylene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
trans-1,2-Dichloroethene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	
trans-1,3-Dichloropropene	10	U	10	0.40	2	NA	8/5/11 17:03		256234	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	8/5/11 17:03	
Dibromofluoromethane	104	89-119	8/5/11 17:03	
Toluene-d8	107	87-121	8/5/11 17:03	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/9/11 16:23
Sample Name:	LC34-IW0076-075.0-20110801	**Units:**	µg/L
Lab Code:	R1104260-011	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257088
Data File Name:	star806.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	7.7		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1501
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/13/11 06:53
Sample Name:	LC34-IW0076-075.0-20110801	**Units:**	mg/L
Lab Code:	R1104260-011	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257191
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081211\X0006053.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1226
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001A-024.5-20110801		
Lab Code:	R1104260-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**293**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 15:08	
Carbon, Total Organic (TOC), Average	9060A	**4.2**		mg/L	1.0	1	NA	8/9/11 21:59	
Chloride	300.0	**137**		mg/L	6.0	30	NA	8/3/11 14:26	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 12:11	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 15:08	
Nitrite as Nitrogen	300.0	3.0	U	mg/L	3.0	30	NA	8/3/11 14:26	*
Sulfate	300.0	**53.6**		mg/L	2.0	10	NA	8/2/11 15:08	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	8/5/11 11:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1226
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001A-024.5-20110801 Dissolved		
Lab Code:	R1104260-014	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 02:52	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/ 7/11	8/13/11 02:52	
Manganese, Dissolved	6010C	**29**		µg/L	10	1	8/ 7/11	8/13/11 02:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1226
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 17:40
Sample Name:	LC34-BW0001A-024.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2630.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	120	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	100	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	120	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**87000**		2500	160	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	130	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	
106-93-4	1,2-Dibromoethane	2500	U	2500	100	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	100	
107-06-2	1,2-Dichloroethane	2500	U	2500	100	
78-87-5	1,2-Dichloropropane	2500	U	2500	140	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	100	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	100	
71-36-3	n-Butanol	130000	U	130000	5300	
78-93-3	2-Butanone (MEK)	5000	U	5000	260	
591-78-6	2-Hexanone	5000	U	5000	180	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	140	
67-64-1	Acetone	**2900**	J	10000	490	
71-43-2	Benzene	2500	U	2500	110	
75-27-4	Bromodichloromethane	**230**	J	2500	100	
75-25-2	Bromoform	2500	U	2500	140	
74-83-9	Bromomethane	2500	U	2500	160	
75-15-0	Carbon Disulfide	5000	U	5000	100	
56-23-5	Carbon Tetrachloride	2500	U	2500	140	
108-90-7	Chlorobenzene	2500	U	2500	100	
75-00-3	Chloroethane	2500	U	2500	160	
67-66-3	Chloroform	**1200**	J	2500	110	
74-87-3	Chloromethane	2500	U	2500	120	
110-82-7	Cyclohexane	5000	U	5000	120	
124-48-1	Dibromochloromethane	2500	U	2500	100	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	
75-09-2	Dichloromethane	2500	U	2500	110	
100-41-4	Ethylbenzene	2500	U	2500	100	
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	100	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1226
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 17:40
Sample Name:	LC34-BW0001A-024.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2630.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	5000	U	5000	120	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	100	
108-87-2	Methylcyclohexane	5000	U	5000	130	
100-42-5	Styrene	2500	U	2500	100	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	100	
108-88-3	Toluene	2500	U	2500	100	
79-01-6	Trichloroethene (TCE)	**300**	J	2500	120	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	100	
75-01-4	Vinyl Chloride	**4000**		2500	120	
156-59-2	cis-1,2-Dichloroethene	**36000**		2500	100	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	100	
179601-23-1	m,p-Xylenes	2500	U	2500	100	
123-86-4	n-Butyl Acetate	**340**	J	2500	110	
95-47-6	o-Xylene	2500	U	2500	100	
156-60-5	trans-1,2-Dichloroethene	**690**	J	2500	100	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	100	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/5/11 17:40	
Dibromofluoromethane	104	89-119	8/5/11 17:40	
Toluene-d8	106	87-121	8/5/11 17:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1226
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/9/11 16:40
Sample Name:	LC34-BW0001A-024.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-013	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257088
Data File Name:	star807.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**15**		1.0	
74-85-1	Ethene	**27**		1.0	
74-82-8	Methane	**92**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1226
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/13/11 08:56
Sample Name:	LC34-BW0001A-024.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-013	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257191
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081211\X0006055.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1137
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001B-031.5-20110801		
Lab Code:	R1104260-015	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**350**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 13:59	
Carbon, Total Organic (TOC), Average	9060A	**8.0**		mg/L	1.0	1	NA	8/9/11 22:39	
Chloride	300.0	**322**		mg/L	20	100	NA	8/3/11 13:57	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 12:20	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 13:59	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/3/11 13:57	*
Sulfate	300.0	**38.1**		mg/L	2.0	10	NA	8/2/11 13:59	
Sulfide, Total	SM 4500-S2- F	**4.5**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1137
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001B-031.5-20110801 Dissolved		
Lab Code:	R1104260-016	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 20:21	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/10/11	8/12/11 20:21	
Manganese, Dissolved	6010C	**28**		µg/L	10	1	8/10/11	8/12/11 20:21	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1137
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/4/11 13:39
Sample Name:	LC34-BW0001B-031.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3830.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**140000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	250000	U	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	20000	U	20000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1137
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/4/11 13:39
Sample Name:	LC34-BW0001B-031.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3830.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**19000**		5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	**600**	J	5000	230	
156-59-2	cis-1,2-Dichloroethene	**14000**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	**1000**	J	5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	**270**	J	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	8/4/11 13:39	
Dibromofluoromethane	112	89-119	8/4/11 13:39	
Toluene-d8	113	87-121	8/4/11 13:39	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1137
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/9/11 16:51
Sample Name:	LC34-BW0001B-031.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-015	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257088
Data File Name:	star808.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**51**		1.0	
74-85-1	Ethene	**30**		1.0	
74-82-8	Methane	**100**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1137
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/13/11 10:59
Sample Name:	LC34-BW0001B-031.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-015	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257191
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081211\X0006057.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	**1.7**		1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1054
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001C-038.5-20110801		
Lab Code:	R1104260-017	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**408**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**23.2**		mg/L	1.0	10	NA	8/2/11 16:03	
Carbon, Total Organic (TOC), Average	9060A	**301**		mg/L	20	20	NA	8/11/11 22:29	
Chloride	300.0	**500**		mg/L	40	200	NA	8/3/11 16:34	
Iodide	300.0	**17.9**		mg/L	2.0	10	NA	8/16/11 12:28	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 16:03	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	8/3/11 16:34	*
Sulfate	300.0	**2.3**		mg/L	2.0	10	NA	8/2/11 16:03	
Sulfide, Total	SM 4500-S2- F	**6.2**		mg/L	1.0	1	NA	8/5/11 11:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1054
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001C-038.5-20110801 Dissolved		
Lab Code:	R1104260-018	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 20:50	
Iron, Dissolved	6010C	**120**		µg/L	100	1	8/10/11	8/12/11 20:50	
Manganese, Dissolved	6010C	**30**		µg/L	10	1	8/10/11	8/12/11 20:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1054
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 18:16
Sample Name:	LC34-BW0001C-038.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2631.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	120	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	100	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	120	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**14000**		2500	160	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	130	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	
106-93-4	1,2-Dibromoethane	2500	U	2500	100	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	100	
107-06-2	1,2-Dichloroethane	2500	U	2500	100	
78-87-5	1,2-Dichloropropane	2500	U	2500	140	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	100	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	100	
71-36-3	n-Butanol	**280000**		130000	5300	
78-93-3	2-Butanone (MEK)	5000	U	5000	260	
591-78-6	2-Hexanone	5000	U	5000	180	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	140	
67-64-1	Acetone	**960**	J	10000	490	
71-43-2	Benzene	2500	U	2500	110	
75-27-4	Bromodichloromethane	**150**	J	2500	100	
75-25-2	Bromoform	2500	U	2500	140	
74-83-9	Bromomethane	2500	U	2500	160	
75-15-0	Carbon Disulfide	5000	U	5000	100	
56-23-5	Carbon Tetrachloride	2500	U	2500	140	
108-90-7	Chlorobenzene	2500	U	2500	100	
75-00-3	Chloroethane	2500	U	2500	160	
67-66-3	Chloroform	**840**	J	2500	110	
74-87-3	Chloromethane	2500	U	2500	120	
110-82-7	Cyclohexane	5000	U	5000	120	
124-48-1	Dibromochloromethane	2500	U	2500	100	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	
75-09-2	Dichloromethane	2500	U	2500	110	
100-41-4	Ethylbenzene	2500	U	2500	100	
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	100	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1054
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 18:16
Sample Name:	LC34-BW0001C-038.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2631.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	5000	U	5000	120	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	100	
108-87-2	Methylcyclohexane	5000	U	5000	130	
100-42-5	Styrene	2500	U	2500	100	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	100	
108-88-3	Toluene	2500	U	2500	100	
79-01-6	Trichloroethene (TCE)	**27000**		2500	120	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	100	
75-01-4	Vinyl Chloride	**480**	J	2500	120	
156-59-2	cis-1,2-Dichloroethene	**31000**		2500	100	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	100	
179601-23-1	m,p-Xylenes	2500	U	2500	100	
123-86-4	n-Butyl Acetate	**95000**		2500	110	
95-47-6	o-Xylene	2500	U	2500	100	
156-60-5	trans-1,2-Dichloroethene	**210**	J	2500	100	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	100	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/5/11 18:16	
Dibromofluoromethane	106	89-119	8/5/11 18:16	
Toluene-d8	108	87-121	8/5/11 18:16	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1054
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001C-038.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-017	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**130**	D	2.0	2	NA	8/10/11 11:21		257189	
Ethene	**16**		1.0	1	NA	8/10/11 11:09		257189	
Methane	**47**		2.0	1	NA	8/10/11 11:09		257189	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1054
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/16/11 04:37
Sample Name:	LC34-BW0001C-038.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-017	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006092.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**370**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**120**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1324
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001D-045.5-20110801		
Lab Code:	R1104260-019	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**250**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**2.9**		mg/L	1.0	10	NA	8/2/11 15:22	
Carbon, Total Organic (TOC), Average	9060A	**37.2**		mg/L	2.0	2	NA	8/9/11 23:19	
Chloride	300.0	**670**		mg/L	40	200	NA	8/3/11 14:40	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 12:37	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 15:22	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	8/3/11 14:40	*
Sulfate	300.0	**79.2**		mg/L	2.0	10	NA	8/2/11 15:22	
Sulfide, Total	SM 4500-S2- F	**1.2**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1324
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001D-045.5-20110801 Dissolved		
Lab Code:	R1104260-020	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 20:56	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/10/11	8/12/11 20:56	
Manganese, Dissolved	6010C	**29**		µg/L	10	1	8/10/11	8/12/11 20:56	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1324
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/4/11 14:39
Sample Name:	LC34-BW0001D-045.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3832.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**32000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	**15000**	J	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	**1200**	J	20000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	**290**	J	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1324
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/4/11 14:39
Sample Name:	LC34-BW0001D-045.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3832.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**120000**		5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	5000	U	5000	230	
156-59-2	cis-1,2-Dichloroethene	**4300**	J	5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	**71000**		5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	5000	U	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	8/4/11 14:39	
Dibromofluoromethane	110	89-119	8/4/11 14:39	
Toluene-d8	114	87-121	8/4/11 14:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1324
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001D-045.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-019	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**140**	D	2.5	2.5	NA	8/9/11 17:19		257088	
Ethene	**5.4**		1.0	1	NA	8/9/11 17:07		257088	
Methane	**19**		2.0	1	NA	8/9/11 17:07		257088	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1324
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/13/11 16:07
Sample Name:	LC34-BW0001D-045.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-019	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257191
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081211\X0006062.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**21**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**4.0**		2.0	
50-21-5	Lactic Acid	**1.2**		1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1421
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001E-052.5-20110801		
Lab Code:	R1104260-021	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**183**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**1.4**		mg/L	1.0	10	NA	8/2/11 14:54	
Carbon, Total Organic (TOC), Average	9060A	**8.3**		mg/L	1.0	1	NA	8/9/11 23:59	
Chloride	300.0	**595**		mg/L	40	200	NA	8/3/11 14:11	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 13:02	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 14:54	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	8/3/11 14:11	
Sulfate	300.0	**77.3**		mg/L	2.0	10	NA	8/2/11 14:54	
Sulfide, Total	SM 4500-S2- F	**1.5**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1421
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001E-052.5-20110801 Dissolved		
Lab Code:	R1104260-022	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 21:14	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/10/11	8/12/11 21:14	
Manganese, Dissolved	6010C	17		µg/L	10	1	8/10/11	8/12/11 21:14	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1421
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 18:53
Sample Name:	LC34-BW0001E-052.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2632.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**3.5**	J	50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**3.1**	J	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	**730**	J	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	200	U	200	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	**4.4**	J	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1421
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 18:53
Sample Name:	LC34-BW0001E-052.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2632.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**32**	J	50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**23**	J	50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1400**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	**4.6**	J	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**8.9**	J	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/5/11 18:53	
Dibromofluoromethane	106	89-119	8/5/11 18:53	
Toluene-d8	108	87-121	8/5/11 18:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1421
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/10/11 11:31
Sample Name:	LC34-BW0001E-052.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-021	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257189
Data File Name:	star819.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**10**		1.0	
74-85-1	Ethene	**2.1**		1.0	
74-82-8	Methane	**9.9**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1421
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/13/11 18:10
Sample Name:	LC34-BW0001E-052.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-021	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257191
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081211\X0006064.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**10**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1509
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001F-059.5-20110801		
Lab Code:	R1104260-023	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**504**		mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	**26.9**		mg/L	1.0	10	NA	8/2/11 17:26	
Carbon, Total Organic (TOC), Average	9060A	**606**		mg/L	50	50	NA	8/11/11 23:09	
Chloride	300.0	**409**		mg/L	40	200	NA	8/3/11 18:00	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 13:28	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 17:26	
Nitrite as Nitrogen	300.0	20	U	mg/L	20	200	NA	8/3/11 18:00	*
Sulfate	300.0	**45.7**		mg/L	2.0	10	NA	8/2/11 17:26	
Sulfide, Total	SM 4500-S2- F	**5.8**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1509
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001F-059.5-20110801 Dissolved		
Lab Code:	R1104260-024	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 21:20	
Iron, Dissolved	6010C	**350**		µg/L	100	1	8/10/11	8/12/11 21:20	
Manganese, Dissolved	6010C	**36**		µg/L	10	1	8/10/11	8/12/11 21:20	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1509
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 19:30
Sample Name:	LC34-BW0001F-059.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2633.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	5000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	25000	U	25000	1200	
79-34-5	1,1,2,2-Tetrachloroethane	25000	U	25000	1000	
79-00-5	1,1,2-Trichloroethane	25000	U	25000	1200	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	25000	U	25000	1600	
75-34-3	1,1-Dichloroethane (1,1-DCA)	25000	U	25000	1000	
75-35-4	1,1-Dichloroethene (1,1-DCE)	25000	U	25000	1500	
120-82-1	1,2,4-Trichlorobenzene	25000	U	25000	1300	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	25000	U	25000	1900	
106-93-4	1,2-Dibromoethane	25000	U	25000	1000	
95-50-1	1,2-Dichlorobenzene	25000	U	25000	1000	
107-06-2	1,2-Dichloroethane	25000	U	25000	1000	
78-87-5	1,2-Dichloropropane	25000	U	25000	1500	
541-73-1	1,3-Dichlorobenzene	25000	U	25000	1000	
106-46-7	1,4-Dichlorobenzene	25000	U	25000	1000	
71-36-3	n-Butanol	**620000**	J	1300000	53000	
78-93-3	2-Butanone (MEK)	50000	U	50000	2600	
591-78-6	2-Hexanone	50000	U	50000	1800	
108-10-1	4-Methyl-2-pentanone	50000	U	50000	1400	
67-64-1	Acetone	100000	U	100000	4900	
71-43-2	Benzene	25000	U	25000	1100	
75-27-4	Bromodichloromethane	25000	U	25000	1000	
75-25-2	Bromoform	25000	U	25000	1400	
74-83-9	Bromomethane	25000	U	25000	1600	
75-15-0	Carbon Disulfide	50000	U	50000	1000	
56-23-5	Carbon Tetrachloride	25000	U	25000	1400	
108-90-7	Chlorobenzene	25000	U	25000	1000	
75-00-3	Chloroethane	25000	U	25000	1600	
67-66-3	Chloroform	**1900**	J	25000	1100	
74-87-3	Chloromethane	25000	U	25000	1200	
110-82-7	Cyclohexane	50000	U	50000	1200	
124-48-1	Dibromochloromethane	25000	U	25000	1000	
75-71-8	Dichlorodifluoromethane (CFC 12)	25000	U	25000	2900	
75-09-2	Dichloromethane	25000	U	25000	1100	
100-41-4	Ethylbenzene	25000	U	25000	1000	
98-82-8	Isopropylbenzene (Cumene)	25000	U	25000	1000	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1509
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 19:30
Sample Name:	LC34-BW0001F-059.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2633.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	5000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	**3100**	J	50000	1200	
1634-04-4	Methyl tert-Butyl Ether	25000	U	25000	1000	
108-87-2	Methylcyclohexane	50000	U	50000	1300	
100-42-5	Styrene	25000	U	25000	1000	
127-18-4	Tetrachloroethene (PCE)	25000	U	25000	1000	
108-88-3	Toluene	25000	U	25000	1000	
79-01-6	Trichloroethene (TCE)	25000	U	25000	1200	
75-69-4	Trichlorofluoromethane (CFC 11)	25000	U	25000	1000	
75-01-4	Vinyl Chloride	25000	U	25000	1200	
156-59-2	cis-1,2-Dichloroethene	25000	U	25000	1000	
10061-01-5	cis-1,3-Dichloropropene	25000	U	25000	1000	
179601-23-1	m,p-Xylenes	25000	U	25000	1000	
123-86-4	n-Butyl Acetate	**900000**		25000	1100	
95-47-6	o-Xylene	25000	U	25000	1000	
156-60-5	trans-1,2-Dichloroethene	25000	U	25000	1000	
10061-02-6	trans-1,3-Dichloropropene	25000	U	25000	1000	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/5/11 19:30	
Dibromofluoromethane	106	89-119	8/5/11 19:30	
Toluene-d8	108	87-121	8/5/11 19:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1509
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/10/11 11:41
Sample Name:	LC34-BW0001F-059.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-023	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257189
Data File Name:	star820.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	**4.3**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1509
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/16/11 07:41
Sample Name:	LC34-BW0001F-059.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-023	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006095.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**590**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**30**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 16:38
Sample Name:	LC34-RW0007-038.5-20110801-D	**Units:**	µg/L
Lab Code:	R1104260-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8432.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	46	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	40	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	46	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**3500**		1000	62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**66**	J	1000	58	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	52	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	
106-93-4	1,2-Dibromoethane	1000	U	1000	40	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	40	
107-06-2	1,2-Dichloroethane	1000	U	1000	40	
78-87-5	1,2-Dichloropropane	1000	U	1000	57	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	40	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	40	
71-36-3	n-Butanol	**240000**		50000	2100	
78-93-3	2-Butanone (MEK)	2000	U	2000	110	
591-78-6	2-Hexanone	2000	U	2000	70	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	54	
67-64-1	Acetone	**620**	BJ	4000	200	
71-43-2	Benzene	1000	U	1000	42	
75-27-4	Bromodichloromethane	**46**	J	1000	40	
75-25-2	Bromoform	1000	U	1000	54	
74-83-9	Bromomethane	1000	U	1000	62	
75-15-0	Carbon Disulfide	2000	U	2000	40	
56-23-5	Carbon Tetrachloride	1000	U	1000	54	
108-90-7	Chlorobenzene	1000	U	1000	40	
75-00-3	Chloroethane	1000	U	1000	62	
67-66-3	Chloroform	**230**	J	1000	44	
74-87-3	Chloromethane	**62**	J	1000	48	
110-82-7	Cyclohexane	2000	U	2000	48	
124-48-1	Dibromochloromethane	1000	U	1000	40	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	120	
75-09-2	Dichloromethane	**46**	J	1000	44	
100-41-4	Ethylbenzene	1000	U	1000	40	
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	40	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1052
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 16:38
Sample Name:	LC34-RW0007-038.5-20110801-D	**Units:**	µg/L
Lab Code:	R1104260-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8432.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	2000	U	2000	46	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	40	
108-87-2	Methylcyclohexane	2000	U	2000	50	
100-42-5	Styrene	1000	U	1000	40	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	40	
108-88-3	Toluene	1000	U	1000	40	
79-01-6	Trichloroethene (TCE)	**2800**		1000	46	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	40	
75-01-4	Vinyl Chloride	**810**	J	1000	46	
156-59-2	cis-1,2-Dichloroethene	**36000**		1000	40	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	40	
179601-23-1	m,p-Xylenes	1000	U	1000	40	
123-86-4	n-Butyl Acetate	**170**	J	1000	42	
95-47-6	o-Xylene	1000	U	1000	40	
156-60-5	trans-1,2-Dichloroethene	**130**	J	1000	40	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/5/11 16:38	
Dibromofluoromethane	100	89-119	8/5/11 16:38	
Toluene-d8	99	87-121	8/5/11 16:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 14:02
Sample Name:	LC34-IW0002I-027.5-20110801-D	**Units:**	µg/L
Lab Code:	R1104260-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8426.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	58	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	50	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**16000**		1300	78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	
106-93-4	1,2-Dibromoethane	1300	U	1300	50	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	50	
107-06-2	1,2-Dichloroethane	1300	U	1300	50	
78-87-5	1,2-Dichloropropane	1300	U	1300	70	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	50	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	50	
71-36-3	n-Butanol	**590000**		63000	2700	
78-93-3	2-Butanone (MEK)	2500	U	2500	130	
591-78-6	2-Hexanone	2500	U	2500	88	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	68	
67-64-1	Acetone	**460**	BJ	5000	250	
71-43-2	Benzene	1300	U	1300	53	
75-27-4	Bromodichloromethane	1300	U	1300	50	
75-25-2	Bromoform	1300	U	1300	68	
74-83-9	Bromomethane	1300	U	1300	78	
75-15-0	Carbon Disulfide	2500	U	2500	50	
56-23-5	Carbon Tetrachloride	1300	U	1300	68	
108-90-7	Chlorobenzene	1300	U	1300	50	
75-00-3	Chloroethane	1300	U	1300	78	
67-66-3	Chloroform	**120**	J	1300	55	
74-87-3	Chloromethane	**60**	J	1300	60	
110-82-7	Cyclohexane	2500	U	2500	60	
124-48-1	Dibromochloromethane	1300	U	1300	50	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	
75-09-2	Dichloromethane	1300	U	1300	55	
100-41-4	Ethylbenzene	1300	U	1300	50	
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	50	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1408
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 14:02
Sample Name:	LC34-IW0002I-027.5-20110801-D	**Units:**	µg/L
Lab Code:	R1104260-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8426.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	2500	U	2500	58	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	50	
108-87-2	Methylcyclohexane	2500	U	2500	63	
100-42-5	Styrene	1300	U	1300	50	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	50	
108-88-3	Toluene	1300	U	1300	50	
79-01-6	Trichloroethene (TCE)	**310**	J	1300	58	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	50	
75-01-4	Vinyl Chloride	**370**	J	1300	58	
156-59-2	cis-1,2-Dichloroethene	**14000**		1300	50	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	50	
179601-23-1	m,p-Xylenes	1300	U	1300	50	
123-86-4	n-Butyl Acetate	**33000**		1300	53	
95-47-6	o-Xylene	1300	U	1300	50	
156-60-5	trans-1,2-Dichloroethene	**260**	J	1300	50	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	8/5/11 14:02	
Dibromofluoromethane	98	89-119	8/5/11 14:02	
Toluene-d8	99	87-121	8/5/11 14:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1315
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/16/11 09:45
Sample Name:	LC34-IW0002D-037.5-20110801-D	**Units:**	mg/L
Lab Code:	R1104260-027	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006097.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	5.0	U	5.0	
64-19-7	Acetic Acid	**1100**		10	
107-92-6	Butanoic Acid (Butyric Acid)	**1200**		20	
50-21-5	Lactic Acid	10	U	10	
79-09-4	Propionic Acid	10	U	10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1137
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001B-031.5-20110801-D		
Lab Code:	R1104260-028	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	8/5/11 18:01	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 17:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1324
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-BW0001D-045.5-20110801-D		
Lab Code:	R1104260-029	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**245**		mg/L	2.0	1	NA	8/9/11 09:15	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 0954
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-RW0008-052.0-20110801-D		
Lab Code:	R1104260-030	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**629**		mg/L	20	100	NA	8/3/11 19:25	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/2/11 16:31	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/3/11 19:25	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/2/11 16:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D1-052.5-20110801-D Dissolved		
Lab Code:	R1104260-032	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 21:25	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/10/11	8/12/11 21:25	
Manganese, Dissolved	6010C	**59**		µg/L	10	1	8/10/11	8/12/11 21:25	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11 1142
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-IW0002D1-052.5-20110801-D	**Units:**	µg/L
Lab Code:	R1104260-031	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**22**		1.0	1	NA	8/10/11 11:50		257189	
Ethene	**31**		1.0	1	NA	8/10/11 11:50		257189	
Methane	**5800**	D	200	100	NA	8/10/11 13:31		257189	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-FD-20110801-01	**Units:**	µg/L
Lab Code:	R1104260-033	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	10	U	10	0.46	2	NA	8/5/11 14:31		256275	
1,1,2,2-Tetrachloroethane	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
1,1,2-Trichloroethane	10	U	10	0.46	2	NA	8/5/11 14:31		256275	
1,1,2-Trichloro-1,2,2-trifluoroethane	**2.2**	J	10	0.62	2	NA	8/5/11 14:31		256275	
1,1-Dichloroethane (1,1-DCA)	**0.92**	J	10	0.40	2	NA	8/5/11 14:31		256275	
1,1-Dichloroethene (1,1-DCE)	10	U	10	0.58	2	NA	8/5/11 14:31		256275	
1,2,4-Trichlorobenzene	10	U	10	0.52	2	NA	8/5/11 14:31		256275	
1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	0.76	2	NA	8/5/11 14:31		256275	
1,2-Dibromoethane	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
1,2-Dichlorobenzene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
1,2-Dichloroethane	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
1,2-Dichloropropane	10	U	10	0.56	2	NA	8/5/11 14:31		256275	
1,3-Dichlorobenzene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
1,4-Dichlorobenzene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
n-Butanol	**220**	J	500	21	2	NA	8/5/11 14:31		256275	
2-Butanone (MEK)	**3.6**	J	20	1.1	2	NA	8/5/11 14:31		256275	
2-Hexanone	20	U	20	0.70	2	NA	8/5/11 14:31		256275	
4-Methyl-2-pentanone	20	U	20	0.54	2	NA	8/5/11 14:31		256275	
Acetone	**7.5**	BJ	40	2.0	2	NA	8/5/11 14:31		256275	
Benzene	10	U	10	0.42	2	NA	8/5/11 14:31		256275	
Bromodichloromethane	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Bromoform	10	U	10	0.54	2	NA	8/5/11 14:31		256275	
Bromomethane	10	U	10	0.62	2	NA	8/5/11 14:31		256275	
Carbon Disulfide	**4.2**	J	20	0.40	2	NA	8/5/11 14:31		256275	
Carbon Tetrachloride	10	U	10	0.54	2	NA	8/5/11 14:31		256275	
Chlorobenzene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Chloroethane	10	U	10	0.62	2	NA	8/5/11 14:31		256275	
Chloroform	10	U	10	0.44	2	NA	8/5/11 14:31		256275	
Chloromethane	**1.4**	J	10	0.48	2	NA	8/5/11 14:31		256275	
Cyclohexane	20	U	20	0.48	2	NA	8/5/11 14:31		256275	
Dibromochloromethane	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Dichlorodifluoromethane (CFC 12)	10	U	10	1.2	2	NA	8/5/11 14:31		256275	
Dichloromethane	10	U	10	0.44	2	NA	8/5/11 14:31		256275	
Ethylbenzene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Isopropylbenzene (Cumene)	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Methyl Acetate	20	U	20	0.46	2	NA	8/5/11 14:31		256275	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-FD-20110801-01	**Units:**	µg/L
Lab Code:	R1104260-033	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Methylcyclohexane	20	U	20	0.50	2	NA	8/5/11 14:31		256275	
Styrene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Tetrachloroethene (PCE)	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Toluene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Trichloroethene (TCE)	**3.2**	J	10	0.46	2	NA	8/5/11 14:31		256275	
Trichlorofluoromethane (CFC 11)	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
Vinyl Chloride	**2900**	D	100	4.7	20	NA	8/8/11 14:42		256488	
cis-1,2-Dichloroethene	**47**		10	0.40	2	NA	8/5/11 14:31		256275	
cis-1,3-Dichloropropene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
m,p-Xylenes	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
n-Butyl Acetate	**4.3**	J	10	0.42	2	NA	8/5/11 14:31		256275	
o-Xylene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	
trans-1,2-Dichloroethene	**17**		10	0.40	2	NA	8/5/11 14:31		256275	
trans-1,3-Dichloropropene	10	U	10	0.40	2	NA	8/5/11 14:31		256275	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	8/5/11 14:31	
Dibromofluoromethane	100	89-119	8/5/11 14:31	
Toluene-d8	99	87-121	8/5/11 14:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 15:12
Sample Name:	LC34-FD-20110801-03	**Units:**	µg/L
Lab Code:	R1104260-034	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8429.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	46	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	40	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	46	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**4100**		1000	62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**94**	J	1000	58	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	52	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	
106-93-4	1,2-Dibromoethane	1000	U	1000	40	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	40	
107-06-2	1,2-Dichloroethane	1000	U	1000	40	
78-87-5	1,2-Dichloropropane	1000	U	1000	57	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	40	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	40	
71-36-3	n-Butanol	**230000**		50000	2100	
78-93-3	2-Butanone (MEK)	2000	U	2000	110	
591-78-6	2-Hexanone	2000	U	2000	70	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	54	
67-64-1	Acetone	**550**	BJ	4000	200	
71-43-2	Benzene	1000	U	1000	42	
75-27-4	Bromodichloromethane	**60**	J	1000	40	
75-25-2	Bromoform	1000	U	1000	54	
74-83-9	Bromomethane	1000	U	1000	62	
75-15-0	Carbon Disulfide	2000	U	2000	40	
56-23-5	Carbon Tetrachloride	1000	U	1000	54	
108-90-7	Chlorobenzene	1000	U	1000	40	
75-00-3	Chloroethane	1000	U	1000	62	
67-66-3	Chloroform	**260**	J	1000	44	
74-87-3	Chloromethane	**96**	J	1000	48	
110-82-7	Cyclohexane	2000	U	2000	48	
124-48-1	Dibromochloromethane	1000	U	1000	40	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	120	
75-09-2	Dichloromethane	1000	U	1000	44	
100-41-4	Ethylbenzene	1000	U	1000	40	
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	40	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 15:12
Sample Name:	LC34-FD-20110801-03	**Units:**	µg/L
Lab Code:	R1104260-034	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8429.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	2000	U	2000	46	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	40	
108-87-2	Methylcyclohexane	2000	U	2000	50	
100-42-5	Styrene	1000	U	1000	40	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	40	
108-88-3	Toluene	1000	U	1000	40	
79-01-6	Trichloroethene (TCE)	**3300**		1000	46	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	40	
75-01-4	Vinyl Chloride	**850**	J	1000	46	
156-59-2	cis-1,2-Dichloroethene	**36000**		1000	40	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	40	
179601-23-1	m,p-Xylenes	1000	U	1000	40	
123-86-4	n-Butyl Acetate	**130**	J	1000	42	
95-47-6	o-Xylene	1000	U	1000	40	
156-60-5	trans-1,2-Dichloroethene	**130**	J	1000	40	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	8/5/11 15:12	
Dibromofluoromethane	99	89-119	8/5/11 15:12	
Toluene-d8	99	87-121	8/5/11 15:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 15:41
Sample Name:	LC34-FD-20110801-04	**Units:**	µg/L
Lab Code:	R1104260-035	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8430.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**120000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	**49000**	J	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	**3000**	BJ	20000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 15:41
Sample Name:	LC34-FD-20110801-04	**Units:**	µg/L
Lab Code:	R1104260-035	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8430.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**470**	J	5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	**5200**		5000	230	
156-59-2	cis-1,2-Dichloroethene	**39000**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	**670**	J	5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	**680**	J	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/5/11 15:41	
Dibromofluoromethane	101	89-119	8/5/11 15:41	
Toluene-d8	102	87-121	8/5/11 15:41	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 16:09
Sample Name:	LC34-FD-20110801-05	**Units:**	µg/L
Lab Code:	R1104260-036	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8431.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**39000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	**22000**	J	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	**3400**	BJ	20000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	**270**	J	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/5/11 16:09
Sample Name:	LC34-FD-20110801-05	**Units:**	µg/L
Lab Code:	R1104260-036	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8431.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**170000**		5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	5000	U	5000	230	
156-59-2	cis-1,2-Dichloroethene	**5900**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	**84000**		5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	5000	U	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/5/11 16:09	
Dibromofluoromethane	103	89-119	8/5/11 16:09	
Toluene-d8	102	87-121	8/5/11 16:09	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/16/11 11:48
Sample Name:	LC34-FD-20110801-06	**Units:**	mg/L
Lab Code:	R1104260-037	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006099.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**620**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**200**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-FD-20110801-09		
Lab Code:	R1104260-038	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**20.5**		mg/L	1.0	10	NA	8/5/11 18:15	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 17:28	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-FD-20110801-02		
Lab Code:	R1104260-039	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**304**		mg/L	20	20	NA	8/11/11 23:49	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-FD-20110801-07		
Lab Code:	R1104260-040	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Sulfide, Total	SM 4500-S2- F	**1.5**		mg/L	1.1	1	NA	8/5/11 11:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
Sample Name:	LC34-FD-20110801-08 Dissolved		
Lab Code:	R1104260-041	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 21:31	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/10/11	8/12/11 21:31	
Manganese, Dissolved	6010C	**10**		µg/L	10	1	8/10/11	8/12/11 21:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/4/11 13:09
Sample Name:	LC34-TB-20110801	**Units:**	µg/L
Lab Code:	R1104260-042	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3829.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/ 1/11
Sample Matrix:	Water	**Date Received:**	8/ 2/11
		Date Analyzed:	8/4/11 13:09
Sample Name:	LC34-TB-20110801	**Units:**	µg/L
Lab Code:	R1104260-042	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3829.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/4/11 13:09	
Dibromofluoromethane	111	89-119	8/4/11 13:09	
Toluene-d8	113	87-121	8/4/11 13:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/2/11 08:02	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	8/9/11 17:20	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	8/3/11 13:14	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	8/16/11 11:01	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/2/11 08:02	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/3/11 13:14	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	8/2/11 08:02	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	8/5/11 11:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	8/9/11 09:15	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/2/11 14:27	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	8/11/11 17:10	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	8/3/11 18:57	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	8/16/11 14:37	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/2/11 14:27	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/3/11 18:57	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	8/2/11 14:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/3/11 13:14	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB4	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/5/11 13:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 20:04	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/10/11	8/12/11 20:04	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 20:04	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 20:16	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/10/11	8/12/11 20:16	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/10/11	8/12/11 20:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB3	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 00:02	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/ 7/11	8/13/11 00:02	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 00:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104260-MB4	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 00:14	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/ 7/11	8/13/11 00:14	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/ 7/11	8/13/11 00:14	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/3/11 14:19
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107469-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	255971
Data File Name:	J:\ACQUDATA\msvoa10\data\080311\D3810.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/3/11 14:19
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107469-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	255971
Data File Name:	J:\ACQUDATA\msvoa10\data\080311\D3810.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/3/11 14:19	
Dibromofluoromethane	108	89-119	8/3/11 14:19	
Toluene-d8	112	87-121	8/3/11 14:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/4/11 12:40
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107521-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3828.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/4/11 12:40
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107521-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256370
Data File Name:	J:\ACQUDATA\msvoa10\data\080411\D3828.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	8/4/11 12:40	
Dibromofluoromethane	110	89-119	8/4/11 12:40	
Toluene-d8	113	87-121	8/4/11 12:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/5/11 12:11
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107482-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2621.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	**13**	J	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/5/11 12:11
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107482-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256234
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080511\J2621.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/5/11 12:11	
Dibromofluoromethane	104	89-119	8/5/11 12:11	
Toluene-d8	109	87-121	8/5/11 12:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/5/11 13:34
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107489-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8425.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**3.2**	J	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/5/11 13:34
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107489-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8425.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/5/11 13:34	
Dibromofluoromethane	103	89-119	8/5/11 13:34	
Toluene-d8	99	87-121	8/5/11 13:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/8/11 14:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107573-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2644.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/8/11 14:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107573-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2644.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	8/8/11 14:05	
Dibromofluoromethane	103	89-119	8/8/11 14:05	
Toluene-d8	106	87-121	8/8/11 14:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/9/11 08:54
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107769-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257087
Data File Name:	star777.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/9/11 15:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107770-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257088
Data File Name:	star802.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/10/11 10:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107801-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257189
Data File Name:	star815.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/12/11 11:22
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1107802-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257191
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081211\X0006034.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/15/11 14:14
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1107913-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	257563
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081511\X0006078.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/ 9/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-RW0008-052.0-20110801	**Units:**	mg/L
Lab Code:	R1104260-003	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-RW0008-052.0 -20110801DUP Duplicate Sample R1104260-003DUP1 Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC), Average	9060A	5.0	73.1	73.4	73.2	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/ 9/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	LC34-RW0008-052.0-20110801	**Units:**	mg/L
Lab Code:	R1104260-003	**Basis:**	NA

Analytical Method: 9060A

LC34-RW0008-052.0-20110801
MS
Matrix Spike
R1104260-003MS1

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	73.1	121	50.0	95	62 - 135

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/ 9/11 - 8/16/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-BW0001E-052.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-021	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0001E-052.5-20110801DUP Duplicate Sample R1104260-021DUP5 Result	Average	RPD	RPD Limit
Iodide	300.0	2.0	2.0 U	2.0 U	NC	NC	20
Alkalinity as CaCO3, Total	SM 2320 B	2.0	183	183	183	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Collected: 8/1/11
Date Received: 8/2/11
Date Analyzed: 8/ 9/11 - 8/16/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0001E-052.5-20110801
Lab Code: R1104260-021

Units: mg/L
Basis: NA

LC34-BW0001E-052.5-20110801MS
Matrix Spike
R1104260-021MS5

Analyte Name	Method	Sample Result	Spike Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO3, Total	SM 2320 B	183	268	83.3	102	70 - 110
Iodide	300.0	ND	10.3	10.0	103	90 - 110

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/2/11 - 8/3/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-BW0001F-059.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-023	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0001F-059.5-20110801DUP Duplicate Sample R1104260-023DUP6 Result	Average	RPD	RPD Limit
Bromide	300.0	1.0	26.9	26.3	26.6	2	20
Chloride	300.0	40	409	406	407	<1	20
Nitrate as Nitrogen	300.0	1.0	1.0 U	1.0 U	NC	NC	20
Sulfate	300.0	2.0	45.7	45.4	45.6	<1	20
Nitrite as Nitrogen	300.0	20	20 U	20 U	NC	NC	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/2/11 - 8/3/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	LC34-BW0001F-059.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-023	**Basis:**	NA

Analytical Method: 300.0

LC34-BW0001F-059.5-201108
01MS
Matrix Spike
R1104260-023MS6

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Bromide	26.9	36.0	10.0	91	90 - 110
Chloride	409	805	400	99	90 - 110
Nitrate as Nitrogen	ND	10.0	10.0	100	90 - 110
Nitrite as Nitrogen	ND	205	200	103	90 - 110
Sulfate	45.7	64.5	20.0	94	90 - 110

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/12/11

Replicate Sample Summary
Inorganic Parameters

Sample Name:	LC34-BW0001B-031.5-20110801 Dissolved	**Units:**	µg/L
Lab Code:	R1104260-016	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0001B-031.5-20110801 DissolvedDUP Duplicate Sample R1104260-016DUP Result	Average	RPD	RPD Limit
Arsenic, Dissolved	6010C	10	10 U	10 U	NC	NC	20
Iron, Dissolved	6010C	100	100 U	100 U	NC	NC	20
Manganese, Dissolved	6010C	10	28	27	27.6	2	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/12/11

Matrix Spike Summary
Inorganic Parameters

Sample Name:	LC34-BW0001B-031.5-20110801 Dissolved	**Units:**	µg/L
Lab Code:	R1104260-016	**Basis:**	NA

Analytical Method: 6010C
Prep Method: EPA 3010A

LC34-BW0001B-031.5-201108
01 DissolvedMS
Matrix Spike
R1104260-016MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	ND	44.9	40	112	75 - 125
Iron, Dissolved	ND	1050	1000	105	75 - 125
Manganese, Dissolved	28	534	500	101	75 - 125

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Collected: 8/1/11
Date Received: 8/2/11
Date Analyzed: 8/ 5/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IW0002D1-052.5-20110801
Lab Code: R1104260-009

Units: µg/L
Basis: NA

Analytical Method: 8260C

Analyte Name	Sample Result	LC34-IW0002D1-052.5-201108 01MS Matrix Spike RQ1107482-05 Result	Spike Amount	% Rec		LC34-IW0002D1-052.5-201108 01DMS Duplicate Matrix Spike RQ1107482-06 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane (TCA)	ND	2380	2500	95		2040	2500	82		76 - 142	15	30
1,1,2,2-Tetrachloroethane	ND	2280	2500	91		2370	2500	95		71 - 120	4	30
1,1,2-Trichloroethane	ND	2390	2500	96		2390	2500	95		80 - 119	<1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	520	2830	2500	92		2250	2500	69		65 - 154	23	30
1,1-Dichloroethane (1,1-DCA)	ND	2530	2500	101		2310	2500	92		79 - 134	9	30
1,1-Dichloroethene (1,1-DCE)	ND	2380	2500	95		2130	2500	85		71 - 143	11	30
1,2,4-Trichlorobenzene	ND	3120	2500	125	*	3020	2500	121	*	75 - 118	3	30
1,2-Dibromo-3-chloropropane (DBC	ND	2380	2500	95		2460	2500	98		60 - 125	3	30
1,2-Dibromoethane	ND	2370	2500	95		2450	2500	98		78 - 119	3	30
1,2-Dichlorobenzene	ND	2550	2500	102		2470	2500	99		82 - 117	3	30
1,2-Dichloroethane	ND	2460	2500	99		2400	2500	96		73 - 133	3	30
1,2-Dichloropropane	ND	2520	2500	101		2390	2500	96		84 - 124	5	30
1,3-Dichlorobenzene	ND	2600	2500	104		2480	2500	99		82 - 117	5	30
1,4-Dichlorobenzene	ND	2630	2500	105		2550	2500	102		81 - 116	3	30
n-Butanol	ND	127000	125000	102		160000	125000	128		50 - 150	23	30
2-Butanone (MEK)	ND	2030	2500	81		2160	2500	86		54 - 130	6	30
2-Hexanone	ND	2100	2500	84		2260	2500	90		55 - 125	7	30
4-Methyl-2-pentanone	ND	2260	2500	90		2510	2500	100		59 - 131	10	30
Acetone	ND	2140	2500	86		2110	2500	84		37 - 152	2	30
Benzene	ND	2440	2500	98		2260	2500	90		81 - 124	8	30
Bromodichloromethane	ND	2450	2500	98		2390	2500	95		81 - 126	3	30
Bromoform	ND	2330	2500	93		2410	2500	96		61 - 126	3	30
Bromomethane	ND	2140	2500	86		2120	2500	85		45 - 154	<1	30
Carbon Disulfide	ND	2510	2500	100		2390	2500	96		32 - 149	5	30
Carbon Tetrachloride	ND	2490	2500	100		2070	2500	83		71 - 146	18	30
Chlorobenzene	ND	2410	2500	96		2290	2500	92		80 - 125	5	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Collected: 8/1/11
Date Received: 8/2/11
Date Analyzed: 8/ 5/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IW0002D1-052.5-20110801
Lab Code: R1104260-009

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IW0002D1-052.5-201108 01MS Matrix Spike RQ1107482-05				LC34-IW0002D1-052.5-201108 01DMS Duplicate Matrix Spike RQ1107482-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Chloroethane	ND	2680	2500	107		2450	2500	98		68 - 148	9	30
Chloroform	ND	2450	2500	98		2300	2500	92		81 - 131	6	30
Chloromethane	ND	2740	2500	110		2490	2500	100		61 - 151	10	30
Cyclohexane	ND	2960	2500	118		2780	2500	111		59 - 144	6	30
Dibromochloromethane	ND	2400	2500	96		2450	2500	98		74 - 130	2	30
Dichlorodifluoromethane (CFC 12)	ND	3000	2500	120		2640	2500	106		44 - 175	13	30
Dichloromethane	ND	2360	2500	94		2350	2500	94		78 - 125	<1	30
Ethylbenzene	ND	2480	2500	99		2260	2500	90		84 - 127	9	30
Isopropylbenzene (Cumene)	ND	2790	2500	112		2410	2500	96		82 - 140	15	30
Methyl Acetate	ND	2180	2500	87		2240	2500	90		38 - 156	3	30
Methyl tert-Butyl Ether	ND	2190	2500	87		2190	2500	88		75 - 126	<1	30
Methylcyclohexane	ND	2960	2500	119		2890	2500	116		63 - 141	2	30
Styrene	ND	2450	2500	98		2360	2500	94		43 - 146	4	30
Tetrachloroethene (PCE)	ND	2550	2500	102		2240	2500	90		66 - 142	13	30
Toluene	ND	2480	2500	99		2290	2500	92		81 - 125	8	30
Trichloroethene (TCE)	1300	3510	2500	87		3200	2500	75		71 - 133	9	30
Trichlorofluoromethane (CFC 11)	ND	2540	2500	102		2130	2500	85		71 - 159	18	30
Vinyl Chloride	1900	4170	2500	90		3810	2500	76		72 - 154	9	30
cis-1,2-Dichloroethene	7500	8930	2500	58	*	8560	2500	43	*	72 - 137	4	30
cis-1,3-Dichloropropene	ND	2340	2500	94		2290	2500	92		71 - 120	2	30
m,p-Xylenes	ND	5020	5000	100		4550	5000	91		80 - 129	10	30
n-Butyl Acetate	690	2870	2500	87		2960	2500	91		18 - 159	3	30
o-Xylene	ND	2470	2500	99		2310	2500	93		80 - 126	7	30
trans-1,2-Dichloroethene	ND	2440	2500	98		2210	2500	88		77 - 130	10	30
trans-1,3-Dichloropropene	ND	2270	2500	91		2270	2500	91		67 - 122	<1	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/16/11

Matrix Spike Summary

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	LC34-IW0002I-027.5-20110801	**Units:**	mg/L
Lab Code:	R1104260-005	**Basis:**	NA

Analytical Method: Organic Acids

		LC34-IW0002I-027.5-20110801 MS Matrix Spike RQ1107913-04			LC34-IW0002I-027.5-20110801 DMS Duplicate Matrix Spike RQ1107913-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND	5.55	5.00	111	5.45	5.00	109	25 - 152	2	30
Acetic Acid	610	671	50.0	129 #	658	50.0	104 #	13 - 167	2	30
Butanoic Acid (Butyric Acid)	210	255	50.0	80 #	254	50.0	79 #	49 - 145	<1	30
Lactic Acid	ND	47.4	49.9	95	47.7	49.9	96	27 - 127	<1	30
Propionic Acid	ND	50.3	49.8	101	50.6	49.8	102	68 - 133	<1	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104260
Project:	ESTCP PED LC24 TR0272	**Date Collected:**	8/1/11
Sample Matrix:	Water	**Date Received:**	8/2/11
		Date Analyzed:	8/10/11

Matrix Spike Summary
Dissolved Gases by GC/FID

Sample Name:	LC34-IW0002D-037.5-20110801	**Units:**	µg/L
Lab Code:	R1104260-007	**Basis:**	NA

Analytical Method: RSK 175

		LC34-IW0002D-037.5-2011080 1MS Matrix Spike RQ1107801-03			LC34-IW0002D-037.5-2011080 1DMS Duplicate Matrix Spike RQ1107801-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	48	106	52.1	111	98.6	52.1	98	57 - 133	7	30
Ethene	28	80.6	48.6	108	75.9	48.6	99	58 - 135	6	30
Methane	43	97.2	52.5	103	95.3	52.5	99	47 - 146	2	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104260-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1104260-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.49	5.2	105	5.61	5.2	107	56 - 138	2	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 2/11 - 8/16/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104260-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.09	1.00	109	90 - 110
Chloride	300.0	1.98	2.00	99	90 - 110
Iodide	300.0	1.04	1.00	104	90 - 110
Nitrate as Nitrogen	300.0	1.09	1.00	109	90 - 110
Sulfate	300.0	2.12	2.00	106	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	20.0	20.0	100	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.3	10.0	103	86 - 117
Nitrite as Nitrogen	300.0	1.03	1.00	103	90 - 110

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 2/11 - 8/16/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104260-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.04	1.00	104	90 - 110
Chloride	300.0	2.00	2.00	100	90 - 110
Iodide	300.0	1.02	1.00	102	90 - 110
Nitrate as Nitrogen	300.0	1.07	1.00	107	90 - 110
Sulfate	300.0	2.10	2.00	105	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	944	1000	94	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.94	10.0	99	86 - 117
Nitrite as Nitrogen	300.0	1.04	1.00	104	90 - 110

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 3/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1104260-LCS4			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Bromide	300.0	1.05	1.00	105	90 - 110

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1104260-LCS5			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Bromide	300.0	1.06	1.00	106	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/12/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104260-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	36.7	40	92	80 - 120
Iron, Dissolved	6010C	987	1000	99	80 - 120
Manganese, Dissolved	6010C	501	500	100	80 - 120

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/13/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104260-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	37.3	40	93	80 - 120
Iron, Dissolved	6010C	1000	1000	100	80 - 120
Manganese, Dissolved	6010C	507	500	101	80 - 120

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 255971

Lab Control Sample
RQ1107469-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.6	20.0	103	72 - 128
1,1,2,2-Tetrachloroethane	19.8	20.0	99	72 - 131
1,1,2-Trichloroethane	19.7	20.0	99	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	21.5	20.0	107	68 - 136
1,1-Dichloroethane (1,1-DCA)	21.2	20.0	106	76 - 124
1,1-Dichloroethene (1,1-DCE)	21.4	20.0	107	72 - 129
1,2,4-Trichlorobenzene	19.7	20.0	98	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.2	20.0	91	62 - 131
1,2-Dibromoethane	19.5	20.0	97	78 - 125
1,2-Dichlorobenzene	19.9	20.0	100	79 - 124
1,2-Dichloroethane	21.0	20.0	105	73 - 127
1,2-Dichloropropane	20.9	20.0	104	80 - 123
1,3-Dichlorobenzene	19.6	20.0	98	78 - 124
1,4-Dichlorobenzene	19.7	20.0	98	78 - 123
n-Butanol	1010	1000	101	70 - 130
2-Butanone (MEK)	19.5	20.0	97	60 - 133
2-Hexanone	18.0	20.0	90	61 - 131
4-Methyl-2-pentanone	18.4	20.0	92	61 - 132
Acetone	23.0	20.0	115	54 - 139
Benzene	20.2	20.0	101	78 - 121
Bromodichloromethane	21.0	20.0	105	80 - 125
Bromoform	19.2	20.0	96	68 - 130
Bromomethane	18.1	20.0	91	57 - 144
Carbon Disulfide	12.4	20.0	62	52 - 140
Carbon Tetrachloride	21.1	20.0	106	68 - 133
Chlorobenzene	20.0	20.0	100	80 - 121
Chloroethane	24.6	20.0	123	71 - 130
Chloroform	21.4	20.0	107	78 - 125
Chloromethane	21.4	20.0	107	61 - 138
Cyclohexane	12.5	20.0	63	57 - 126
Dibromochloromethane	20.1	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	18.2	20.0	91	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 255971

Lab Control Sample
RQ1107469-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.2	20.0	101	75 - 125
Ethylbenzene	20.3	20.0	102	78 - 123
Isopropylbenzene (Cumene)	22.5	20.0	113	73 - 133
Methyl Acetate	21.2	20.0	106	57 - 157
Methyl tert-Butyl Ether	19.2	20.0	96	75 - 126
Methylcyclohexane	12.5	20.0	62	61 - 125
Styrene	20.4	20.0	102	80 - 132
Tetrachloroethene (PCE)	20.0	20.0	100	72 - 131
Toluene	20.5	20.0	103	78 - 122
Trichloroethene (TCE)	20.1	20.0	101	74 - 127
Trichlorofluoromethane (CFC 11)	23.7	20.0	119	69 - 141
Vinyl Chloride	24.1	20.0	120	72 - 138
cis-1,2-Dichloroethene	21.2	20.0	106	78 - 122
cis-1,3-Dichloropropene	19.8	20.0	99	77 - 125
m,p-Xylenes	41.6	40.0	104	79 - 126
n-Butyl Acetate	17.7	20.0	88	31 - 144
o-Xylene	20.3	20.0	102	77 - 118
trans-1,2-Dichloroethene	20.5	20.0	102	75 - 121
trans-1,3-Dichloropropene	19.8	20.0	99	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 4/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256370

Lab Control Sample
RQ1107521-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.3	20.0	97	72 - 128
1,1,2,2-Tetrachloroethane	19.8	20.0	99	72 - 131
1,1,2-Trichloroethane	19.6	20.0	98	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	21.0	20.0	105	68 - 136
1,1-Dichloroethane (1,1-DCA)	20.5	20.0	102	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.4	20.0	102	72 - 129
1,2,4-Trichlorobenzene	18.9	20.0	95	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.5	20.0	92	62 - 131
1,2-Dibromoethane	19.5	20.0	98	78 - 125
1,2-Dichlorobenzene	19.4	20.0	97	79 - 124
1,2-Dichloroethane	21.1	20.0	106	73 - 127
1,2-Dichloropropane	20.4	20.0	102	80 - 123
1,3-Dichlorobenzene	19.0	20.0	95	78 - 124
1,4-Dichlorobenzene	19.1	20.0	95	78 - 123
n-Butanol	1050	1000	105	70 - 130
2-Butanone (MEK)	18.5	20.0	93	60 - 133
2-Hexanone	17.1	20.0	85	61 - 131
4-Methyl-2-pentanone	17.2	20.0	86	61 - 132
Acetone	18.2	20.0	91	54 - 139
Benzene	19.2	20.0	96	78 - 121
Bromodichloromethane	20.6	20.0	103	80 - 125
Bromoform	19.0	20.0	95	68 - 130
Bromomethane	14.5	20.0	72	57 - 144
Carbon Disulfide	19.1	20.0	96	52 - 140
Carbon Tetrachloride	20.2	20.0	101	68 - 133
Chlorobenzene	19.5	20.0	98	80 - 121
Chloroethane	23.9	20.0	119	71 - 130
Chloroform	21.0	20.0	105	78 - 125
Chloromethane	20.1	20.0	100	61 - 138
Cyclohexane	20.2	20.0	101	57 - 126
Dibromochloromethane	20.3	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	17.2	20.0	86	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 4/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256370

Analyte Name	Lab Control Sample RQ1107521-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.8	20.0	99	75 - 125
Ethylbenzene	19.5	20.0	97	78 - 123
Isopropylbenzene (Cumene)	21.3	20.0	106	73 - 133
Methyl Acetate	20.7	20.0	103	57 - 157
Methyl tert-Butyl Ether	19.2	20.0	96	75 - 126
Methylcyclohexane	20.0	20.0	100	61 - 125
Styrene	20.0	20.0	100	80 - 132
Tetrachloroethene (PCE)	18.9	20.0	95	72 - 131
Toluene	19.5	20.0	97	78 - 122
Trichloroethene (TCE)	19.4	20.0	97	74 - 127
Trichlorofluoromethane (CFC 11)	23.2	20.0	116	69 - 141
Vinyl Chloride	23.0	20.0	115	72 - 138
cis-1,2-Dichloroethene	20.7	20.0	104	78 - 122
cis-1,3-Dichloropropene	19.3	20.0	97	77 - 125
m,p-Xylenes	40.2	40.0	101	79 - 126
n-Butyl Acetate	18.6	20.0	93	31 - 144
o-Xylene	19.6	20.0	98	77 - 118
trans-1,2-Dichloroethene	19.2	20.0	96	75 - 121
trans-1,3-Dichloropropene	19.3	20.0	97	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256234

Analyte Name	Lab Control Sample RQ1107482-03 Result	Spike Amount	% Rec		% Rec Limits
1,1,1-Trichloroethane (TCA)	20.9	20.0	105		72 - 128
1,1,2,2-Tetrachloroethane	18.9	20.0	95		72 - 131
1,1,2-Trichloroethane	19.9	20.0	100		80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	22.8	20.0	114		68 - 136
1,1-Dichloroethane (1,1-DCA)	22.7	20.0	114		76 - 124
1,1-Dichloroethene (1,1-DCE)	21.4	20.0	107		72 - 129
1,2,4-Trichlorobenzene	27.2	20.0	136	*	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.1	20.0	95		62 - 131
1,2-Dibromoethane	20.1	20.0	100		78 - 125
1,2-Dichlorobenzene	22.5	20.0	113		79 - 124
1,2-Dichloroethane	20.4	20.0	102		73 - 127
1,2-Dichloropropane	22.0	20.0	110		80 - 123
1,3-Dichlorobenzene	23.9	20.0	120		78 - 124
1,4-Dichlorobenzene	23.8	20.0	119		78 - 123
n-Butanol	1200	1000	120		70 - 130
2-Butanone (MEK)	15.4	20.0	77		60 - 133
2-Hexanone	15.3	20.0	76		61 - 131
4-Methyl-2-pentanone	15.8	20.0	79		61 - 132
Acetone	16.7	20.0	84		54 - 139
Benzene	21.4	20.0	107		78 - 121
Bromodichloromethane	20.8	20.0	104		80 - 125
Bromoform	19.7	20.0	98		68 - 130
Bromomethane	19.3	20.0	97		57 - 144
Carbon Disulfide	18.1	20.0	90		52 - 140
Carbon Tetrachloride	21.9	20.0	109		68 - 133
Chlorobenzene	22.2	20.0	111		80 - 121
Chloroethane	23.8	20.0	119		71 - 130
Chloroform	21.3	20.0	106		78 - 125
Chloromethane	23.5	20.0	117		61 - 138
Cyclohexane	21.8	20.0	109		57 - 126
Dibromochloromethane	21.2	20.0	106		78 - 133
Dichlorodifluoromethane (CFC 12)	26.5	20.0	133		45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256234

Analyte Name	Lab Control Sample RQ1107482-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.8	20.0	104	75 - 125
Ethylbenzene	23.5	20.0	118	78 - 123
Isopropylbenzene (Cumene)	26.3	20.0	132	73 - 133
Methyl Acetate	16.4	20.0	82	57 - 157
Methyl tert-Butyl Ether	17.8	20.0	89	75 - 126
Methylcyclohexane	22.4	20.0	112	61 - 125
Styrene	22.2	20.0	111	80 - 132
Tetrachloroethene (PCE)	24.7	20.0	124	72 - 131
Toluene	22.9	20.0	114	78 - 122
Trichloroethene (TCE)	21.9	20.0	109	74 - 127
Trichlorofluoromethane (CFC 11)	22.9	20.0	114	69 - 141
Vinyl Chloride	24.9	20.0	125	72 - 138
cis-1,2-Dichloroethene	22.3	20.0	112	78 - 122
cis-1,3-Dichloropropene	20.6	20.0	103	77 - 125
m,p-Xylenes	47.3	40.0	118	79 - 126
n-Butyl Acetate	17.5	20.0	88	31 - 144
o-Xylene	23.1	20.0	116	77 - 118
trans-1,2-Dichloroethene	21.3	20.0	107	75 - 121
trans-1,3-Dichloropropene	20.0	20.0	100	69 - 127

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256275

	Lab Control Sample RQ1107489-04			Duplicate Lab Control Sample RQ1107489-05					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	19.7	20.0	99	17.8	20.0	89	72 - 128	10	30
1,1,2,2-Tetrachloroethane	20.7	20.0	103	20.5	20.0	103	72 - 131	<1	30
1,1,2-Trichloroethane	21.3	20.0	106	21.3	20.0	107	80 - 122	<1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	18.0	20.0	90	16.4	20.0	82	68 - 136	9	30
1,1-Dichloroethane (1,1-DCA)	21.7	20.0	109	20.9	20.0	105	76 - 124	4	30
1,1-Dichloroethene (1,1-DCE)	18.7	20.0	93	18.1	20.0	91	72 - 129	3	30
1,2,4-Trichlorobenzene	19.1	20.0	96	18.8	20.0	94	70 - 133	2	30
1,2-Dibromo-3-chloropropane (DBCP)	17.5	20.0	88	19.3	20.0	97	62 - 131	10	30
1,2-Dibromoethane	20.1	20.0	100	20.2	20.0	101	78 - 125	<1	30
1,2-Dichlorobenzene	19.5	20.0	98	19.6	20.0	98	79 - 124	<1	30
1,2-Dichloroethane	20.6	20.0	103	19.7	20.0	99	73 - 127	4	30
1,2-Dichloropropane	23.6	20.0	118	23.1	20.0	115	80 - 123	2	30
1,3-Dichlorobenzene	19.0	20.0	95	18.9	20.0	94	78 - 124	<1	30
1,4-Dichlorobenzene	19.6	20.0	98	19.2	20.0	96	78 - 123	2	30
n-Butanol	1140	1000	114	1210	1000	121	70 - 130	6	30
2-Butanone (MEK)	20.3	20.0	102	21.4	20.0	107	60 - 133	5	30
2-Hexanone	19.2	20.0	96	19.6	20.0	98	61 - 131	2	30
4-Methyl-2-pentanone	18.9	20.0	95	19.6	20.0	98	61 - 132	4	30
Acetone	20.2	20.0	101	20.3	20.0	102	54 - 139	<1	30
Benzene	21.9	20.0	109	20.7	20.0	104	78 - 121	5	30
Bromodichloromethane	20.4	20.0	102	19.9	20.0	100	80 - 125	2	30
Bromoform	18.0	20.0	90	17.7	20.0	88	68 - 130	2	30
Bromomethane	16.4	20.0	82	15.2	20.0	76	57 - 144	8	30
Carbon Disulfide	19.9	20.0	99	19.4	20.0	97	52 - 140	3	30
Carbon Tetrachloride	18.9	20.0	95	17.0	20.0	85	68 - 133	10	30
Chlorobenzene	20.3	20.0	102	20.1	20.0	100	80 - 121	1	30
Chloroethane	23.4	20.0	117	21.8	20.0	109	71 - 130	7	30
Chloroform	20.7	20.0	103	19.9	20.0	100	78 - 125	4	30
Chloromethane	21.3	20.0	107	19.9	20.0	99	61 - 138	7	30
Cyclohexane	20.4	20.0	102	24.3	20.0	121	57 - 126	17	30
Dibromochloromethane	18.9	20.0	95	18.6	20.0	93	78 - 133	2	30
Dichlorodifluoromethane (CFC 12)	18.8	20.0	94	17.9	20.0	89	45 - 159	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256275

	Lab Control Sample RQ1107489-04			Duplicate Lab Control Sample RQ1107489-05					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Dichloromethane	20.3	20.0	102	19.1	20.0	96	75 - 125	6	30
Ethylbenzene	21.0	20.0	105	19.6	20.0	98	78 - 123	7	30
Isopropylbenzene (Cumene)	21.7	20.0	109	20.6	20.0	103	73 - 133	5	30
Methyl Acetate	19.5	20.0	98	19.9	20.0	99	57 - 157	2	30
Methyl tert-Butyl Ether	20.3	20.0	101	20.0	20.0	100	75 - 126	1	30
Methylcyclohexane	18.8	20.0	94	22.0	20.0	110	61 - 125	16	30
Styrene	20.4	20.0	102	20.2	20.0	101	80 - 132	1	30
Tetrachloroethene (PCE)	19.3	20.0	97	18.2	20.0	91	72 - 131	6	30
Toluene	21.0	20.0	105	19.6	20.0	98	78 - 122	7	30
Trichloroethene (TCE)	20.8	20.0	104	19.1	20.0	96	74 - 127	8	30
Trichlorofluoromethane (CFC 11)	20.2	20.0	101	19.2	20.0	96	69 - 141	5	30
Vinyl Chloride	25.6	20.0	128	23.2	20.0	116	72 - 138	10	30
cis-1,2-Dichloroethene	21.1	20.0	105	20.2	20.0	101	78 - 122	4	30
cis-1,3-Dichloropropene	20.0	20.0	100	19.7	20.0	98	77 - 125	2	30
m,p-Xylenes	41.6	40.0	104	39.8	40.0	99	79 - 126	4	30
n-Butyl Acetate	18.3	20.0	92	19.6	20.0	98	31 - 144	7	30
o-Xylene	20.7	20.0	103	20.2	20.0	101	77 - 118	2	30
trans-1,2-Dichloroethene	20.5	20.0	102	18.9	20.0	95	75 - 121	8	30
trans-1,3-Dichloropropene	19.0	20.0	95	18.5	20.0	93	69 - 127	3	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256488

Lab Control Sample
RQ1107573-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.5	20.0	87	72 - 128
1,1,2,2-Tetrachloroethane	16.4	20.0	82	72 - 131
1,1,2-Trichloroethane	17.3	20.0	87	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.6	20.0	93	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.3	20.0	96	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.7	20.0	94	72 - 129
1,2,4-Trichlorobenzene	22.7	20.0	113	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84	62 - 131
1,2-Dibromoethane	17.3	20.0	87	78 - 125
1,2-Dichlorobenzene	18.5	20.0	92	79 - 124
1,2-Dichloroethane	17.3	20.0	86	73 - 127
1,2-Dichloropropane	17.7	20.0	89	80 - 123
1,3-Dichlorobenzene	19.4	20.0	97	78 - 124
1,4-Dichlorobenzene	19.4	20.0	97	78 - 123
n-Butanol	1230	1000	123	70 - 130
2-Butanone (MEK)	15.8	20.0	79	60 - 133
2-Hexanone	15.2	20.0	76	61 - 131
4-Methyl-2-pentanone	15.9	20.0	79	61 - 132
Acetone	17.2	20.0	86	54 - 139
Benzene	17.6	20.0	88	78 - 121
Bromodichloromethane	17.0	20.0	85	80 - 125
Bromoform	16.8	20.0	84	68 - 130
Bromomethane	17.1	20.0	85	57 - 144
Carbon Disulfide	19.2	20.0	96	52 - 140
Carbon Tetrachloride	18.0	20.0	90	68 - 133
Chlorobenzene	18.0	20.0	90	80 - 121
Chloroethane	20.1	20.0	101	71 - 130
Chloroform	17.9	20.0	90	78 - 125
Chloromethane	19.7	20.0	99	61 - 138
Cyclohexane	21.3	20.0	106	57 - 126
Dibromochloromethane	18.1	20.0	91	78 - 133
Dichlorodifluoromethane (CFC 12)	22.6	20.0	113	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256488

Lab Control Sample
RQ1107573-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	17.9	20.0	89	75 - 125
Ethylbenzene	18.7	20.0	93	78 - 123
Isopropylbenzene (Cumene)	21.2	20.0	106	73 - 133
Methyl Acetate	15.9	20.0	79	57 - 157
Methyl tert-Butyl Ether	16.2	20.0	81	75 - 126
Methylcyclohexane	22.0	20.0	110	61 - 125
Styrene	18.3	20.0	91	80 - 132
Tetrachloroethene (PCE)	20.5	20.0	102	72 - 131
Toluene	18.7	20.0	94	78 - 122
Trichloroethene (TCE)	17.5	20.0	87	74 - 127
Trichlorofluoromethane (CFC 11)	19.6	20.0	98	69 - 141
Vinyl Chloride	21.6	20.0	108	72 - 138
cis-1,2-Dichloroethene	19.1	20.0	95	78 - 122
cis-1,3-Dichloropropene	17.2	20.0	86	77 - 125
m,p-Xylenes	38.0	40.0	95	79 - 126
n-Butyl Acetate	17.5	20.0	87	31 - 144
o-Xylene	18.4	20.0	92	77 - 118
trans-1,2-Dichloroethene	18.5	20.0	93	75 - 121
trans-1,3-Dichloropropene	16.7	20.0	84	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 9/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 257087

Lab Control Sample
RQ1107769-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	28.5	26.1	109	56 - 148
Ethene	23.8	24.3	98	58 - 155
Methane	28.7	26.2	110	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/ 9/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 257088

Lab Control Sample
RQ1107770-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	28.9	26.1	111	56 - 148
Ethene	24.6	24.3	101	58 - 155
Methane	27.0	26.2	103	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/10/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 257189

Lab Control Sample
RQ1107801-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	25.0	26.1	96	56 - 148
Ethene	21.6	24.3	89	58 - 155
Methane	25.2	26.2	96	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/12/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 257191

	Lab Control Sample RQ1107802-02			Duplicate Lab Control Sample RQ1107802-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.29	1.00	129	1.24	1.00	124	70 - 130	4	30
Acetic Acid	8.73	10.0	87	9.05	10.0	91	70 - 135	4	30
Butanoic Acid (Butyric Acid)	7.88	10.0	79	8.65	10.0	86	78 - 113	9	30
Lactic Acid	10.1	9.97	102	10.0	9.97	100	61 - 109	1	30
Propionic Acid	8.11	9.97	81	8.81	9.97	88	80 - 125	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC24 TR0272
Sample Matrix: Water

Service Request: R1104260
Date Analyzed: 8/15/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 257563

	Lab Control Sample RQ1107913-02			Duplicate Lab Control Sample RQ1107913-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.17	1.00	117	1.16	1.00	116	70 - 130	<1	30
Acetic Acid	9.73	10.0	97	9.68	10.0	97	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.6	10.0	105	9.64	10.0	96	78 - 113	9	30
Lactic Acid	9.38	9.97	94	9.30	9.97	93	61 - 109	<1	30
Propionic Acid	9.15	9.97	92	9.37	9.97	94	80 - 125	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-RW0007-038.5-201108 01	8/01/2011	1052	001, 002	W	16	3	2	1	3	1	3	1	1	1	
LC34-RW0008-052.0-201108 01	8/01/2011	0954	003, 004	W	16	3	2	1	3	1	3	1	1	1	
LC34-IW0002I-027.5-201108 01	8/01/2011	1408	005, 006	W	16	3	2	1	3	1	3	1	1	1	
LC34-IW0002D-037.5-201108 01	8/01/2011	1315	007, 008	W	16	3	2	1	3	1	3	1	1	1	For VOC, only 2½ vials filled.
LC34-IW0002D1-052.5-201108 01	8/01/2011	1142	009, 010	W	16	3	2	1	3	1	3	1	1	1	
LC34-IW0076-075.0-201108 01	8/01/2011	1501	011, 012	W	13	3	2	1	3		3			1	
LC34-BW0001A-024.5-201108 01	8/01/2011	1226	013, 014	W	16	3	2	1	3	1	3	1	1	1	For VOC, only 2 vials filled.
LC34-BW0001B-031.5-201108 01	8/01/2011	1137	015, 016	W	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001C-038.5-201108 01	8/01/2011	1054	017, 018	W	16	3	2	1	3	1	3	1	1	1	-017 RSK vials not Rec'd KB 8/3/11
LC34-BW0001D-045.5-201108 01	8/01/2011	1324	019, 020	W	16	3	2	1	3	1	3	1	1	1	

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

Invoice Information

P.O. #

Bill to: TR0272

R1104260
GeoSyntec Consultants
ESTCP PED LC24 TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature: [signature]
Printed Name: Joseph Bartlett	Printed Name: FEDEX	Printed Name:	Printed Name: Gregory LaTorre
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 08/01/11 — 1700	Date/Time:	Date/Time:	Date/Time: 8/2/11 1005

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
					Analysis Requested										
LC34-BW0001E-052.5-20110801	8/01/2011	1421	-021, 022	W	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001F-059.5-20110801	8/01/2011	1509	-023, 024	W	16	3	2	1	3	1	3	1	1	1	
~~LC34-BW0002A-024.5-201108~~	~~8/__/2011~~			~~W~~	~~12~~	~~3~~	~~2~~	~~1~~	~~3~~		~~3~~				JB.
~~LC34-BW0002B-031.5-201108~~	8/__/2011			W	12	3	2	1	3		3				
~~LC34-BW0002C-038.5-201108~~	8/__/2011			W	~~15~~	3	2	1	3	1	3	1	1		
~~LC34-BW0002D-045.5-201108~~	8/__/2011			W	12	3	2	1	3		3				
LC34-BW0002E-052.5-201108	8/__/2011			W	12	3	2	1	3		3				
LC34-BW0002F-059.5-201108	8/__/2011			W	12	3	2	1	3		3				
LC34-BW0003A-024.5-201108	8/__/2011			W	12	3	2	1	3		3				
~~LC34-BW0003B-031.5-201108~~	~~8/__/2011~~			~~W~~	~~12~~	~~3~~	~~2~~	~~1~~	~~3~~		~~3~~				

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

R1104260
GeoSyntec Consultants
ESTCP PED LC24 TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature: [signature]
Printed Name: Joseph Bartlett	Printed Name: RED 4X	Printed Name:	Printed Name: Gregory LaFon
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 08/01/11 – 1700	Date/Time:	Date/Time:	Date/Time: 8/2/11 1105

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-BW0003C-038.5-201108~~	~~8/ /2011~~			W	15	3	2	1	3	1	3	1	1		
~~LC34-BW0003D-045.5-201108~~	~~8/ /2011~~			W	12	3	2	1	3		3				JB 1
~~LC34-BW0003E-052.5-201108~~	~~8/ /2011~~			W	12	3	2	1	3		3				
~~LC34-BW0003F-059.5-201108~~	~~8/ /2011~~			W	12	3	2	1	3		3				
LC34-RW0007-038.5-201108 01 -D	8/01/2011	1052	-025	W	3	3									
LC34-IW0002I-027.5-201108 01 -D	8/01/2011	1408	-026	W	3	3									
LC34-IW0002D-037.5-201108 01 -D	8/01/2011	1315	-027	W	2		2								
LC34-BW0001B-031.5-201108 01 -D	8/01/2011	1137	-028	W	1			1							
LC34-BW0001D-045.5-201108 01 -D	8/01/2011	1324	-029	W	1								1		
~~LC34-BW0002D-045.5-201108 D~~	~~8/ /2011~~			W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab.

R1104260

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:

Signature: [signature]

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 08/01/11 — 1700

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: [signature]

Printed Name: Gregory LaFone

Firm: CAS

Date/Time: 8/2/11 1005

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-BW0003B-031.5-201108 -D~~	~~8/ /2011~~			~~W~~	~~3~~				3						SB
~~LC34-BW0003C-038.5-201108 -D~~	~~8/ /2011~~			~~W~~	~~1~~					1					
LC34-RW0008-052.0-20110801-D	8/01/2011	0954	-030	W	1							1			
LC34-IW0002D1-052.5-20110801-D	8/01/2011	1142	-031, 032	W	4						3			1	
~~LC34-RW0002F-059.5-201108 -D~~	~~8/ /2011~~			~~W~~	~~3~~	~~3~~									
LC34-FD-20110801-~~101~~	8/01/2011	NA	~~-030~~ -033 SB	W	3	3									
LC34-FD-20110801-~~103~~	8/01/2011	NA	-034	W	3	3									
LC34-FD-20110801-04	8/01/2011	NA	-035	W	3	3									- only 2 vials filled
LC34-FD-20110801-05	8/01/2011	NA	-036	W	3	3									
LC34-FD-20110801-06	8/01/2011	NA	-037	W	2		2								

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

R1104260

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Bartlett	Printed Name: EDD	Printed Name:	Printed Name: Gregory LaFave
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 08/01/11 — 1700	Date/Time:	Date/Time:	Date/Time: 8/2/11 1005

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	2		2								SB.
LC34-FD-20110801 -09	8/01/2011	NA	-038	W	1			1							
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	1			1							
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	1			1							
LC34-FD-20110801 -02	8/01/2011	NA	-039, 04 VB 8/2/11	W	3				3						
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	3				3						
LC34-FD-20110801 -07	8/01/2011	NA	-040	W	1					1					
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	3						3				
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	3						3				
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	1							1			

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X ____ III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

R1104260

Invoice Information

P.O. # _____

Bill to: TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: FedEx	Signature:	Signature: [signature]
Printed Name: Joseph Bartlett	Printed Name:	Printed Name:	Printed Name: Gregory Lutton
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 08/07/11 — 1700	Date/Time:	Date/Time:	Date/Time: 8/2/11 1205

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	1								1		
LC34-FD-20110801 -0	8/01/2011	NA	-041	W	1									1	
~~LC34-TB-201108~~	8/ /2011	NA		W	3	3									
LC34-TB-201108	8/ /2011	NA		W	3	3									
~~LC34-TB-201108~~	8/ /2011	NA		W	3	3									
					0										
TB ☆	8/1/11		-042		0	X									
					0										
					0										
					0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

☆ added as per JB phone call 8/1/11 KB

R1104260

RELINQUISHED BY:

Signature:

Printed Name: Joseph Bartlett

Firm: Geosyntec

Date/Time: 08/01/11 — 1700

RECEIVED BY:

Signature:

Printed Name: FedEx

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory Lafave

Firm: CAS

Date/Time: 8/2/11 1005

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1104260

Cooler received on 8/2/11 by: AP **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	YES	(NO)			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A*		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	3.5°	4.0°	2.8°	2.5°	
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	(Yes)	(Yes)	Yes
	If No, Explain Below	No	No	No	No	No

Inal rec'd broken for BW0001E-8260, BW0001B-met-acid cap cracked for BW0001E but septa held it shut, new cap upon receipt

Date/Time Temperatures Taken: 8/2/11 1011

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: all noted on ack.

PC Secondary Review: KB 8/2/11

Cooler Breakdown: Date: 8/2/11 Time: 1615 by: AP

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	(NO)
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A		

Explain any discrepancies: did not receive RSK-175 for location BW0001C

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC1030511F	2/16				
≤2	HNO_3								
≤2	H_2SO_4			WC1030815	4/12				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	~~Zn Aceta~~	-	-	WC103098C	5/12				
	HCl	*	*	411100160	7/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-087-002, 1-045-004

Other Comments:

* Alkalinity w/bubbles - BW0001C, BW0001B, BW0001E, BW0001A, BW0001F, BW0001D

Sulfide w/bubbles - BW0001A, BW0001E, FD-20110801-07, BW0001B, BW0001C, BW0001D

VOA - TW0076 (1), RW0007 (1), FW0002D1 (2), Trip Blank (1), FD-20110801-05 (1), TW0002I (1), RW0007 (1), BW0001D (1), TW0002D (1), + BW0001B (1)

PC Secondary Review: KB 8/3/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

August 25, 2011 Service Request No: R1104287

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34 PED TR0272 8/2/11

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory between August 3, 2011 and August 5, 2011. For your reference, these analyses have been assigned our service request number **R1104287**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1104287
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	8/3,5/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Twenty-eight (28) water samples were collected by the client on 8/2-3/11 and were received for analysis at Columbia Analytical Services on 8/3/11 and 8/5/11 via a national courier The samples were received at a cooler temperature range of 2.8-5.3°C within the guidelines of 0-6°C. Bubbles were noted in 1 of the 3 vials for samples noted on the Cooler Receipt and Preservation Check Form at the end of the report. No data was affected.

Organic Compounds

Eighteen (18) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C. Fourteen (14) of these samples were also analyzed for GC Method RSK-175 and Organic Acids by HPLC.

Initial and Continuing Calibration Criteria was met for all samples for 8260C except the Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Acetone (23.7%) on the 8/16/11 analytical run. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report for 8260C and RSK-175. Site QC is included in the report for location LC34-BW0002A-024.5-201108 (CAS # R1104287-001). All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) and Laboratory Control Samples (LCS) and LCS Duplicate (RSK & Organic Acids) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All samples were initially analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Samples LC34-BW0002D-045.5-20110802-D (CAS #R1104287-013) and LC34-TB-20110803 (CAS #R1104287-028) were repeated outside of holding time due to possible carry over contamination in the initial runs. The -013 sample results were confirmed as reported on the initial run. The Trip Blank results did indicate carry over as the repeated sample had no hits. Only the initial data is included in the report as per the EDD requirements of only 1 set data to be reported.

The Laboratory Method Blanks were free from contamination except for Acetone which contained a low level hit on the 8/5/11 analytical run. Affected data is flagged as "B" in the report.

For the RSK analysis, there was a slight shift in Retention Time (RT) and poor peak shape (very broad instead of Gaussian) for ethane during the analysis of these samples. It appears that coelution is occurring, but we don't have the ability to differentiate between ethane and the co-eluting compound. The Ethane results may be biased high.

Approved by Karen Rensher **Date** 8/31/11

The Primary Standard mix for RSK expired on 8/6/11. The Secondary Standard mix expired on 8/9/11. Both standards have shown little to no degradation over the past year. New standards have been ordered but not yet received.

No other analytical or QC problems were encountered.

Inorganic Parameters

Fourteen (14) water samples were analyzed for Bromide and Iodide by IC method 300.0, and TOC by 9060A. Three (3) of the samples were analyzed for Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report for the Anions, Sulfide and Alkalinity. Site Specific QC is included for locations LC34-BW0002C-038.5-20110802 (CAS #R1104287-003) Br and SO4, LC34-BW0003B-031.5-20110802 (CAS #R1104287-008) Br and I, and LC34-BW0003D-045.5-20110802 (CAS #R1104287-010) I. All Matrix Spike (MS) recoveries were acceptable except for Bromide (-003) and Iodide (-010). The recoveries have been flagged as "*". All Relative Percent Difference (RPD) calculations were acceptable. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burnham **Date** 8/31/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1104287

Lab ID	Client ID
R1104287-001	LC34-BW0002A-024.5-20110802
R1104287-002	LC34-BW0002B-031.5-20110802
R1104287-003	LC34-BW0002C-038.5-20110802
R1104287-004	LC34-BW0002D-045.5-20110802
R1104287-005	LC34-BW0002E-052.5-20110802
R1104287-006	LC34-BW0002F-059.5-20110802
R1104287-007	LC34-BW0003A-024.5-20110802
R1104287-008	LC34-BW0003B-031.5-20110802
R1104287-009	LC34-BW0003C-038.5-20110802
R1104287-010	LC34-BW0003D-045.5-20110802
R1104287-011	LC34-BW0003E-052.5-20110802
R1104287-012	LC34-BW0003F-059.5-20110802
R1104287-013	LC34-BW0002D-045.5-20110802-D
R1104287-014	LC34-BW0003B-031.5-20110802-D
R1104287-015	LC34-BW0003C-038.5-20110802-D
R1104287-016	LC34-BW0002F-059.5-20110802-D
R1104287-017	LC34-FD-20110802-08
R1104287-018	LC34-FD-20110802-05
R1104287-019	LC34-FD-20110802-06
R1104287-020	LC34-FD-20110802-03
R1104287-021	LC34-FD-20110802-07
R1104287-022	LC34-FD-20110802-02
R1104287-023	LC34-FD-20110802-01
R1104287-024	LC34-FD-20110802-04
R1104287-025	LC34-TB-20110802
R1104287-026	LC34-IDW183866-20110803
R1104287-027	LC34-IDW183865-20110803
R1104287-028	LC34-TB-20110803

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1103
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002A-024.5-20110802		
Lab Code:	R1104287-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	8/5/11 18:29	
Carbon, Total Organic (TOC), Average	9060A	**3.7**		mg/L	1.0	1	NA	8/10/11 18:20	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 13:37	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1103
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/5/11 17:06
Sample Name:	LC34-BW0002A-024.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8433.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	58	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	50	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**23000**		1300	78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	
106-93-4	1,2-Dibromoethane	1300	U	1300	50	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	50	
107-06-2	1,2-Dichloroethane	1300	U	1300	50	
78-87-5	1,2-Dichloropropane	1300	U	1300	70	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	50	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	50	
71-36-3	n-Butanol	**11000**	J	63000	2700	
78-93-3	2-Butanone (MEK)	2500	U	2500	130	
591-78-6	2-Hexanone	2500	U	2500	88	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	68	
67-64-1	Acetone	**610**	J	5000	250	
71-43-2	Benzene	1300	U	1300	53	
75-27-4	Bromodichloromethane	**70**	J	1300	50	
75-25-2	Bromoform	1300	U	1300	68	
74-83-9	Bromomethane	1300	U	1300	78	
75-15-0	Carbon Disulfide	2500	U	2500	50	
56-23-5	Carbon Tetrachloride	1300	U	1300	68	
108-90-7	Chlorobenzene	1300	U	1300	50	
75-00-3	Chloroethane	1300	U	1300	78	
67-66-3	Chloroform	**370**	J	1300	55	
74-87-3	Chloromethane	**65**	J	1300	60	
110-82-7	Cyclohexane	2500	U	2500	60	
124-48-1	Dibromochloromethane	1300	U	1300	50	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	
75-09-2	Dichloromethane	**55**	J	1300	55	
100-41-4	Ethylbenzene	1300	U	1300	50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1103
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/5/11 17:06
Sample Name:	LC34-BW0002A-024.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8433.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	50	
79-20-9	Methyl Acetate	2500	U	2500	58	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	50	
108-87-2	Methylcyclohexane	2500	U	2500	63	
100-42-5	Styrene	1300	U	1300	50	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	50	
108-88-3	Toluene	1300	U	1300	50	
79-01-6	Trichloroethene (TCE)	**300**	J	1300	58	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	50	
75-01-4	Vinyl Chloride	**820**	J	1300	58	
156-59-2	cis-1,2-Dichloroethene	**32000**		1300	50	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	50	
179601-23-1	m,p-Xylenes	1300	U	1300	50	
123-86-4	n-Butyl Acetate	**150**	J	1300	53	
95-47-6	o-Xylene	1300	U	1300	50	
156-60-5	trans-1,2-Dichloroethene	**610**	J	1300	50	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/5/11 17:06	
Dibromofluoromethane	98	89-119	8/5/11 17:06	
Toluene-d8	97	87-121	8/5/11 17:06	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1103
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/10/11 13:51
Sample Name:	LC34-BW0002A-024.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257189
Data File Name:	star828.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**32**		1.0	
74-85-1	Ethene	**18**		1.0	
74-82-8	Methane	**86**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1103
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/22/11 17:25
Sample Name:	LC34-BW0002A-024.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006197.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**13**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1024
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002B-031.5-20110802		
Lab Code:	R1104287-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	8/5/11 18:43	
Carbon, Total Organic (TOC), Average	9060A	12.9		mg/L	1.0	1	NA	8/10/11 19:00	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 13:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1024
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/5/11 17:34
Sample Name:	LC34-BW0002B-031.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8434.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	58	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	50	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1100**	J	1300	78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	
106-93-4	1,2-Dibromoethane	1300	U	1300	50	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	50	
107-06-2	1,2-Dichloroethane	1300	U	1300	50	
78-87-5	1,2-Dichloropropane	1300	U	1300	70	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	50	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	50	
71-36-3	n-Butanol	63000	U	63000	2700	
78-93-3	2-Butanone (MEK)	2500	U	2500	130	
591-78-6	2-Hexanone	2500	U	2500	88	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	68	
67-64-1	Acetone	**670**	J	5000	250	
71-43-2	Benzene	1300	U	1300	53	
75-27-4	Bromodichloromethane	**88**	J	1300	50	
75-25-2	Bromoform	1300	U	1300	68	
74-83-9	Bromomethane	1300	U	1300	78	
75-15-0	Carbon Disulfide	2500	U	2500	50	
56-23-5	Carbon Tetrachloride	1300	U	1300	68	
108-90-7	Chlorobenzene	1300	U	1300	50	
75-00-3	Chloroethane	1300	U	1300	78	
67-66-3	Chloroform	**340**	J	1300	55	
74-87-3	Chloromethane	1300	U	1300	60	
110-82-7	Cyclohexane	2500	U	2500	60	
124-48-1	Dibromochloromethane	1300	U	1300	50	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	
75-09-2	Dichloromethane	1300	U	1300	55	
100-41-4	Ethylbenzene	1300	U	1300	50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1024
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/5/11 17:34
Sample Name:	LC34-BW0002B-031.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8434.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	50	
79-20-9	Methyl Acetate	2500	U	2500	58	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	50	
108-87-2	Methylcyclohexane	2500	U	2500	63	
100-42-5	Styrene	1300	U	1300	50	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	50	
108-88-3	Toluene	1300	U	1300	50	
79-01-6	Trichloroethene (TCE)	**2500**		1300	58	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	50	
75-01-4	Vinyl Chloride	**470**	J	1300	58	
156-59-2	cis-1,2-Dichloroethene	**42000**		1300	50	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	50	
179601-23-1	m,p-Xylenes	1300	U	1300	50	
123-86-4	n-Butyl Acetate	**130**	J	1300	53	
95-47-6	o-Xylene	1300	U	1300	50	
156-60-5	trans-1,2-Dichloroethene	**580**	J	1300	50	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/5/11 17:34	
Dibromofluoromethane	100	89-119	8/5/11 17:34	
Toluene-d8	98	87-121	8/5/11 17:34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1024
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002B-031.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**82**		1.0	1	NA	8/10/11 14:01		257189	
Ethene	**14**		1.0	1	NA	8/10/11 14:01		257189	
Methane	**130**	D	4.0	2	NA	8/10/11 14:16		257189	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1024
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/22/11 22:05
Sample Name:	LC34-BW0002B-031.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006203.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**48**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**3.7**		2.0	
50-21-5	Lactic Acid	**1.1**		1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0937
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002C-038.5-20110802		
Lab Code:	R1104287-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**480**		mg/L	2.0	1	NA	8/16/11 09:00	
Bromide	300.0	**7.6**		mg/L	1.0	10	NA	8/3/11 19:54	
Carbon, Total Organic (TOC), Average	9060A	**354**		mg/L	20	20	NA	8/13/11 12:41	
Chloride	300.0	**539**		mg/L	20	100	NA	8/4/11 08:47	
Iodide	300.0	**12.9**		mg/L	2.0	10	NA	8/16/11 13:54	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/3/11 19:54	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/4/11 08:47	
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/3/11 19:54	
Sulfide, Total	SM 4500-S2- F	**10.5**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0937
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 18:28
Sample Name:	LC34-BW0002C-038.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2690.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	58	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	50	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1300	U	1300	78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	
106-93-4	1,2-Dibromoethane	1300	U	1300	50	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	50	
107-06-2	1,2-Dichloroethane	1300	U	1300	50	
78-87-5	1,2-Dichloropropane	1300	U	1300	70	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	50	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	50	
71-36-3	n-Butanol	**210000**		63000	2700	
78-93-3	2-Butanone (MEK)	2500	U	2500	130	
591-78-6	2-Hexanone	2500	U	2500	88	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	68	
67-64-1	Acetone	**540**	J	5000	250	
71-43-2	Benzene	1300	U	1300	53	
75-27-4	Bromodichloromethane	1300	U	1300	50	
75-25-2	Bromoform	1300	U	1300	68	
74-83-9	Bromomethane	1300	U	1300	78	
75-15-0	Carbon Disulfide	2500	U	2500	50	
56-23-5	Carbon Tetrachloride	1300	U	1300	68	
108-90-7	Chlorobenzene	1300	U	1300	50	
75-00-3	Chloroethane	1300	U	1300	78	
67-66-3	Chloroform	**260**	J	1300	55	
74-87-3	Chloromethane	1300	U	1300	60	
110-82-7	Cyclohexane	2500	U	2500	60	
124-48-1	Dibromochloromethane	1300	U	1300	50	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	
75-09-2	Dichloromethane	**65**	J	1300	55	
100-41-4	Ethylbenzene	1300	U	1300	50	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0937
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 18:28
Sample Name:	LC34-BW0002C-038.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2690.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	50	
79-20-9	Methyl Acetate	**73**	J	2500	58	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	50	
108-87-2	Methylcyclohexane	2500	U	2500	63	
100-42-5	Styrene	1300	U	1300	50	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	50	
108-88-3	Toluene	1300	U	1300	50	
79-01-6	Trichloroethene (TCE)	**380**	J	1300	58	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	50	
75-01-4	Vinyl Chloride	**6100**		1300	58	
156-59-2	cis-1,2-Dichloroethene	**43000**		1300	50	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	50	
179601-23-1	m,p-Xylenes	1300	U	1300	50	
123-86-4	n-Butyl Acetate	**42000**		1300	53	
95-47-6	o-Xylene	1300	U	1300	50	
156-60-5	trans-1,2-Dichloroethene	**280**	J	1300	50	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	8/9/11 18:28	
Dibromofluoromethane	103	89-119	8/9/11 18:28	
Toluene-d8	109	87-121	8/9/11 18:28	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0937
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/10/11 14:26
Sample Name:	LC34-BW0002C-038.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257189
Data File Name:	star831.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**69**		1.0	
74-85-1	Ethene	**21**		1.0	
74-82-8	Methane	**52**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0937
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/20/11 01:22
Sample Name:	LC34-BW0002C-038.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258188
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081911\X0006162.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**350**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**290**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1141
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002D-045.5-20110802		
Lab Code:	R1104287-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.1**		mg/L	1.0	10	NA	8/5/11 19:38	
Carbon, Total Organic (TOC), Average	9060A	**4.1**		mg/L	1.0	1	NA	8/10/11 19:40	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 14:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1141
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/5/11 18:31
Sample Name:	LC34-BW0002D-045.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8436.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	**170**	J	1000	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	**20**	J	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	**12**	J	250	11	
100-41-4	Ethylbenzene	250	U	250	10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1141
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/5/11 18:31
Sample Name:	LC34-BW0002D-045.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256275
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\080511\L8436.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**43**	J	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**1500**		250	12	
156-59-2	cis-1,2-Dichloroethene	**8800**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	**86**	J	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**59**	J	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/5/11 18:31	
Dibromofluoromethane	101	89-119	8/5/11 18:31	
Toluene-d8	102	87-121	8/5/11 18:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1141
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002D-045.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**17**		1.0	1	NA	8/10/11 14:38		257189	
Ethene	**14**		1.0	1	NA	8/10/11 14:38		257189	
Methane	**290**	D	10	5	NA	8/10/11 14:49		257189	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1141
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/22/11 23:38
Sample Name:	LC34-BW0002D-045.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006205.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**3.3**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1229
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002E-052.5-20110802		
Lab Code:	R1104287-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.4**		mg/L	1.0	10	NA	8/5/11 19:52	
Carbon, Total Organic (TOC), Average	9060A	**4.4**		mg/L	1.0	1	NA	8/10/11 20:20	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 14:11	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1229
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/8/11 17:10
Sample Name:	LC34-BW0002E-052.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2649.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	**150**	J	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.29**	J	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1229
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/8/11 17:10
Sample Name:	LC34-BW0002E-052.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2649.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.3**	J	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**3.4**	J	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**51**		5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	**43**		5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.29**	J	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	8/8/11 17:10	
Dibromofluoromethane	103	89-119	8/8/11 17:10	
Toluene-d8	104	87-121	8/8/11 17:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1229
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/10/11 15:15
Sample Name:	LC34-BW0002E-052.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257189
Data File Name:	star834.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	**8.4**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1229
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/23/11 01:58
Sample Name:	LC34-BW0002E-052.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006208.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**2.8**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1311
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002F-059.5-20110802		
Lab Code:	R1104287-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.3**		mg/L	1.0	10	NA	8/5/11 20:33	
Carbon, Total Organic (TOC), Average	9060A	**7.1**		mg/L	1.0	1	NA	8/10/11 21:00	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 16:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1311
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002F-059.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/5/11 19:27		256275	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	8/5/11 19:27		256275	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	8/5/11 19:27		256275	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
1,1-Dichloroethene (1,1-DCE)	**0.43**	J	5.0	0.29	1	NA	8/5/11 19:27		256275	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	8/5/11 19:27		256275	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	8/5/11 19:27		256275	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	8/5/11 19:27		256275	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
n-Butanol	250	U	250	11	1	NA	8/5/11 19:27		256275	
2-Butanone (MEK)	10	U	10	0.51	1	NA	8/5/11 19:27		256275	
2-Hexanone	10	U	10	0.35	1	NA	8/5/11 19:27		256275	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	8/5/11 19:27		256275	
Acetone	**3.0**	BJ	20	0.98	1	NA	8/5/11 19:27		256275	
Benzene	5.0	U	5.0	0.21	1	NA	8/5/11 19:27		256275	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Bromoform	5.0	U	5.0	0.27	1	NA	8/5/11 19:27		256275	
Bromomethane	5.0	U	5.0	0.31	1	NA	8/5/11 19:27		256275	
Carbon Disulfide	**2.1**	J	10	0.20	1	NA	8/5/11 19:27		256275	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	8/5/11 19:27		256275	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Chloroethane	5.0	U	5.0	0.31	1	NA	8/5/11 19:27		256275	
Chloroform	5.0	U	5.0	0.22	1	NA	8/5/11 19:27		256275	
Chloromethane	5.0	U	5.0	0.24	1	NA	8/5/11 19:27		256275	
Cyclohexane	10	U	10	0.24	1	NA	8/5/11 19:27		256275	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	8/5/11 19:27		256275	
Dichloromethane	5.0	U	5.0	0.22	1	NA	8/5/11 19:27		256275	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Methyl Acetate	10	U	10	0.23	1	NA	8/5/11 19:27		256275	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1311
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0002F-059.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Methylcyclohexane	10	U	10	0.25	1	NA	8/5/11 19:27		256275	
Styrene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Toluene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Trichloroethene (TCE)	**5.1**		5.0	0.23	1	NA	8/5/11 19:27		256275	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
Vinyl Chloride	**440**	D	25	1.2	5	NA	8/8/11 17:47		256488	
cis-1,2-Dichloroethene	**150**		5.0	0.20	1	NA	8/5/11 19:27		256275	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
n-Butyl Acetate	**0.41**	J	5.0	0.21	1	NA	8/5/11 19:27		256275	
o-Xylene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	
trans-1,2-Dichloroethene	**4.6**	J	5.0	0.20	1	NA	8/5/11 19:27		256275	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/5/11 19:27		256275	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	8/5/11 19:27	
Dibromofluoromethane	102	89-119	8/5/11 19:27	
Toluene-d8	100	87-121	8/5/11 19:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1311
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/11/11 10:31
Sample Name:	LC34-BW0002F-059.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-006	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257194
Data File Name:	star840.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**1.3**		1.0	
74-85-1	Ethene	**1.5**		1.0	
74-82-8	Methane	**14**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1311
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/23/11 03:31
Sample Name:	LC34-BW0002F-059.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006210.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**11**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1317
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003A-024.5-20110802		
Lab Code:	R1104287-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	8/5/11 20:47	
Carbon, Total Organic (TOC), Average	9060A	7.2		mg/L	1.0	1	NA	8/10/11 21:40	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 14:20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1317
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/8/11 18:24
Sample Name:	LC34-BW0003A-024.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2651.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1300	U	1300	58	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	1300	50	
79-00-5	1,1,2-Trichloroethane	1300	U	1300	58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1300	U	1300	78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	
120-82-1	1,2,4-Trichlorobenzene	1300	U	1300	65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	
106-93-4	1,2-Dibromoethane	1300	U	1300	50	
95-50-1	1,2-Dichlorobenzene	1300	U	1300	50	
107-06-2	1,2-Dichloroethane	1300	U	1300	50	
78-87-5	1,2-Dichloropropane	1300	U	1300	70	
541-73-1	1,3-Dichlorobenzene	1300	U	1300	50	
106-46-7	1,4-Dichlorobenzene	1300	U	1300	50	
71-36-3	n-Butanol	63000	U	63000	2700	
78-93-3	2-Butanone (MEK)	2500	U	2500	130	
591-78-6	2-Hexanone	2500	U	2500	88	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	68	
67-64-1	Acetone	**260**	J	5000	250	
71-43-2	Benzene	1300	U	1300	53	
75-27-4	Bromodichloromethane	1300	U	1300	50	
75-25-2	Bromoform	1300	U	1300	68	
74-83-9	Bromomethane	1300	U	1300	78	
75-15-0	Carbon Disulfide	2500	U	2500	50	
56-23-5	Carbon Tetrachloride	1300	U	1300	68	
108-90-7	Chlorobenzene	1300	U	1300	50	
75-00-3	Chloroethane	1300	U	1300	78	
67-66-3	Chloroform	**210**	J	1300	55	
74-87-3	Chloromethane	1300	U	1300	60	
110-82-7	Cyclohexane	2500	U	2500	60	
124-48-1	Dibromochloromethane	1300	U	1300	50	
75-71-8	Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	
75-09-2	Dichloromethane	1300	U	1300	55	
100-41-4	Ethylbenzene	1300	U	1300	50	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1317
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/8/11 18:24
Sample Name:	LC34-BW0003A-024.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2651.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	250

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1300	U	1300	50	
79-20-9	Methyl Acetate	2500	U	2500	58	
1634-04-4	Methyl tert-Butyl Ether	1300	U	1300	50	
108-87-2	Methylcyclohexane	2500	U	2500	63	
100-42-5	Styrene	1300	U	1300	50	
127-18-4	Tetrachloroethene (PCE)	1300	U	1300	50	
108-88-3	Toluene	1300	U	1300	50	
79-01-6	Trichloroethene (TCE)	1300	U	1300	58	
75-69-4	Trichlorofluoromethane (CFC 11)	1300	U	1300	50	
75-01-4	Vinyl Chloride	**12000**		1300	58	
156-59-2	cis-1,2-Dichloroethene	**33000**		1300	50	
10061-01-5	cis-1,3-Dichloropropene	1300	U	1300	50	
179601-23-1	m,p-Xylenes	1300	U	1300	50	
123-86-4	n-Butyl Acetate	1300	U	1300	53	
95-47-6	o-Xylene	1300	U	1300	50	
156-60-5	trans-1,2-Dichloroethene	**760**	J	1300	50	
10061-02-6	trans-1,3-Dichloropropene	1300	U	1300	50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	8/8/11 18:24	
Dibromofluoromethane	103	89-119	8/8/11 18:24	
Toluene-d8	108	87-121	8/8/11 18:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1317
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003A-024.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**12**		1.0	1	NA	8/11/11 10:42		257194	
Ethene	**240**	D	5.0	5	NA	8/11/11 11:02		257194	
Methane	**110**	D	10	5	NA	8/11/11 11:02		257194	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1317
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/23/11 05:04
Sample Name:	LC34-BW0003A-024.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006212.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**12**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1222
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003B-031.5-20110802		
Lab Code:	R1104287-008	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**7.7**		mg/L	1.0	10	NA	8/8/11 12:54	
Carbon, Total Organic (TOC), Average	9060A	**89**		mg/L	10	10	NA	8/10/11 22:20	
Iodide	300.0	**9.6**		mg/L	2.0	10	NA	8/16/11 14:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1222
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/8/11 19:01
Sample Name:	LC34-BW0003B-031.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2652.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1100	
78-93-3	2-Butanone (MEK)	1000	U	1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	2000	U	2000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	500	U	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	1000	U	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	**78**	J	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1222
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/8/11 19:01
Sample Name:	LC34-BW0003B-031.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256488
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080811\J2652.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	500	U	500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**14000**		500	23	
156-59-2	cis-1,2-Dichloroethene	**6700**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	**88**	J	500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**310**	J	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	8/8/11 19:01	
Dibromofluoromethane	106	89-119	8/8/11 19:01	
Toluene-d8	111	87-121	8/8/11 19:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1222
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003B-031.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-008	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**24**		1.0	1	NA	8/11/11 11:14		257194	
Ethene	**410**	D	5.0	5	NA	8/11/11 11:24		257194	
Methane	**85**		2.0	1	NA	8/11/11 11:14		257194	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1222
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/23/11 16:47
Sample Name:	LC34-BW0003B-031.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-008	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258678
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082311\X0006225.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**120**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**95**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**2.1**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003C-038.5-20110802		
Lab Code:	R1104287-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**760**		mg/L	2.0	1	NA	8/16/11 09:00	
Bromide	300.0	**52.0**		mg/L	2.0	20	NA	8/11/11 21:36	
Carbon, Total Organic (TOC), Average	9060A	**671**		mg/L	50	50	NA	8/13/11 14:40	
Chloride	300.0	**329**		mg/L	16	80	NA	8/4/11 09:01	
Iodide	300.0	**64.1**		mg/L	4.0	20	NA	8/16/11 17:36	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/4/11 09:44	
Nitrite as Nitrogen	300.0	8.0	U	mg/L	8.0	80	NA	8/4/11 09:01	
Sulfate	300.0	**3.4**		mg/L	2.0	10	NA	8/3/11 20:37	
Sulfide, Total	SM 4500-S2- F	**14.6**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003C-038.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130	U	130	5.8	25	NA	8/9/11 20:19		256489	
1,1,2,2-Tetrachloroethane	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
1,1,2-Trichloroethane	130	U	130	5.8	25	NA	8/9/11 20:19		256489	
1,1,2-Trichloro-1,2,2-trifluoroethane	130	U	130	7.8	25	NA	8/9/11 20:19		256489	
1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
1,1-Dichloroethene (1,1-DCE)	130	U	130	7.3	25	NA	8/9/11 20:19		256489	
1,2,4-Trichlorobenzene	130	U	130	6.5	25	NA	8/9/11 20:19		256489	
1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	25	NA	8/9/11 20:19		256489	
1,2-Dibromoethane	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
1,2-Dichlorobenzene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
1,2-Dichloroethane	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
1,2-Dichloropropane	130	U	130	7.1	25	NA	8/9/11 20:19		256489	
1,3-Dichlorobenzene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
1,4-Dichlorobenzene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
n-Butanol	**190000**	D	13000	530	50	NA	8/8/11 15:56		256488	
2-Butanone (MEK)	250	U	250	13	25	NA	8/9/11 20:19		256489	
2-Hexanone	250	U	250	8.8	25	NA	8/9/11 20:19		256489	
4-Methyl-2-pentanone	250	U	250	6.8	25	NA	8/9/11 20:19		256489	
Acetone	**49**	J	500	25	25	NA	8/9/11 20:19		256489	
Benzene	130	U	130	5.3	25	NA	8/9/11 20:19		256489	
Bromodichloromethane	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Bromoform	130	U	130	6.8	25	NA	8/9/11 20:19		256489	
Bromomethane	130	U	130	7.8	25	NA	8/9/11 20:19		256489	
Carbon Disulfide	250	U	250	5.0	25	NA	8/9/11 20:19		256489	
Carbon Tetrachloride	130	U	130	6.8	25	NA	8/9/11 20:19		256489	
Chlorobenzene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Chloroethane	130	U	130	7.8	25	NA	8/9/11 20:19		256489	
Chloroform	**7.5**	J	130	5.5	25	NA	8/9/11 20:19		256489	
Chloromethane	130	U	130	6.0	25	NA	8/9/11 20:19		256489	
Cyclohexane	250	U	250	6.0	25	NA	8/9/11 20:19		256489	
Dibromochloromethane	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Dichlorodifluoromethane (CFC 12)	130	U	130	15	25	NA	8/9/11 20:19		256489	
Dichloromethane	**8.5**	J	130	5.5	25	NA	8/9/11 20:19		256489	
Ethylbenzene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Isopropylbenzene (Cumene)	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Methyl Acetate	250	U	250	5.8	25	NA	8/9/11 20:19		256489	
Methyl tert-Butyl Ether	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Methylcyclohexane	250	U	250	6.3	25	NA	8/9/11 20:19		256489	
Styrene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Tetrachloroethene (PCE)	130	U	130	5.0	25	NA	8/9/11 20:19		256489	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003C-038.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Toluene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Trichloroethene (TCE)	**21**	J	130	5.8	25	NA	8/9/11 20:19		256489	
Trichlorofluoromethane (CFC 11)	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
Vinyl Chloride	**3100**		130	5.8	25	NA	8/9/11 20:19		256489	
cis-1,2-Dichloroethene	**2500**		130	5.0	25	NA	8/9/11 20:19		256489	
cis-1,3-Dichloropropene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
m,p-Xylenes	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
n-Butyl Acetate	**290**		130	5.3	25	NA	8/9/11 20:19		256489	
o-Xylene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	
trans-1,2-Dichloroethene	**67**	J	130	5.0	25	NA	8/9/11 20:19		256489	
trans-1,3-Dichloropropene	130	U	130	5.0	25	NA	8/9/11 20:19		256489	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/9/11 20:19	
Dibromofluoromethane	106	89-119	8/9/11 20:19	
Toluene-d8	103	87-121	8/9/11 20:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003C-038.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-009	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**15**		1.0	1	NA	8/11/11 11:34		257194	
Ethene	**150**	D	10	10	NA	8/11/11 11:46		257194	
Methane	**710**	D	20	10	NA	8/11/11 11:46		257194	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/22/11 13:32
Sample Name:	LC34-BW0003C-038.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-009	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006192.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**680**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**630**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**15**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1356
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003D-045.5-20110802		
Lab Code:	R1104287-010	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**38.4**		mg/L	1.0	10	NA	8/5/11 21:15	
Carbon, Total Organic (TOC), Average	9060A	**603**		mg/L	50	50	NA	8/13/11 16:39	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 15:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1356
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 15:24
Sample Name:	LC34-BW0003D-045.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2685.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**430**	J	5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	**510000**		250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	**1500**	J	20000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	**280**	J	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1356
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 15:24
Sample Name:	LC34-BW0003D-045.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2685.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	
79-20-9	Methyl Acetate	**240**	J	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**1100**	J	5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	**740**	J	5000	230	
156-59-2	cis-1,2-Dichloroethene	**7500**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	**170000**		5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	5000	U	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	8/9/11 15:24	
Dibromofluoromethane	103	89-119	8/9/11 15:24	
Toluene-d8	107	87-121	8/9/11 15:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1356
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/11/11 12:00
Sample Name:	LC34-BW0003D-045.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-010	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257194
Data File Name:	star847.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**20**		1.0	
74-85-1	Ethene	**5.5**		1.0	
74-82-8	Methane	**18**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1356
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/20/11 17:48
Sample Name:	LC34-BW0003D-045.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-010	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258188
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081911\X0006178.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**640**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**320**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1022
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003E-052.5-20110802		
Lab Code:	R1104287-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**58.2**		mg/L	2.0	20	NA	8/8/11 13:35	
Carbon, Total Organic (TOC), Average	9060A	**905**		mg/L	50	50	NA	8/13/11 17:19	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 15:37	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1022
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 16:01
Sample Name:	LC34-BW0003E-052.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2686.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	2500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	13000	U	13000	580	
79-34-5	1,1,2,2-Tetrachloroethane	13000	U	13000	500	
79-00-5	1,1,2-Trichloroethane	13000	U	13000	580	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	13000	U	13000	780	
75-34-3	1,1-Dichloroethane (1,1-DCA)	13000	U	13000	500	
75-35-4	1,1-Dichloroethene (1,1-DCE)	13000	U	13000	730	
120-82-1	1,2,4-Trichlorobenzene	13000	U	13000	650	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	13000	U	13000	950	
106-93-4	1,2-Dibromoethane	13000	U	13000	500	
95-50-1	1,2-Dichlorobenzene	13000	U	13000	500	
107-06-2	1,2-Dichloroethane	13000	U	13000	500	
78-87-5	1,2-Dichloropropane	13000	U	13000	710	
541-73-1	1,3-Dichlorobenzene	13000	U	13000	500	
106-46-7	1,4-Dichlorobenzene	13000	U	13000	500	
71-36-3	n-Butanol	**890000**		630000	27000	
78-93-3	2-Butanone (MEK)	25000	U	25000	1300	
591-78-6	2-Hexanone	25000	U	25000	880	
108-10-1	4-Methyl-2-pentanone	25000	U	25000	680	
67-64-1	Acetone	**5500**	J	50000	2500	
71-43-2	Benzene	13000	U	13000	530	
75-27-4	Bromodichloromethane	13000	U	13000	500	
75-25-2	Bromoform	13000	U	13000	680	
74-83-9	Bromomethane	13000	U	13000	780	
75-15-0	Carbon Disulfide	25000	U	25000	500	
56-23-5	Carbon Tetrachloride	13000	U	13000	680	
108-90-7	Chlorobenzene	13000	U	13000	500	
75-00-3	Chloroethane	13000	U	13000	780	
67-66-3	Chloroform	**1200**	J	13000	550	
74-87-3	Chloromethane	13000	U	13000	600	
110-82-7	Cyclohexane	25000	U	25000	600	
124-48-1	Dibromochloromethane	13000	U	13000	500	
75-71-8	Dichlorodifluoromethane (CFC 12)	13000	U	13000	1500	
75-09-2	Dichloromethane	**580**	J	13000	550	
100-41-4	Ethylbenzene	13000	U	13000	500	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1022
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 16:01
Sample Name:	LC34-BW0003E-052.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2686.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	2500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	13000	U	13000	500	
79-20-9	Methyl Acetate	**1100**	J	25000	580	
1634-04-4	Methyl tert-Butyl Ether	13000	U	13000	500	
108-87-2	Methylcyclohexane	25000	U	25000	630	
100-42-5	Styrene	13000	U	13000	500	
127-18-4	Tetrachloroethene (PCE)	13000	U	13000	500	
108-88-3	Toluene	13000	U	13000	500	
79-01-6	Trichloroethene (TCE)	13000	U	13000	580	
75-69-4	Trichlorofluoromethane (CFC 11)	13000	U	13000	500	
75-01-4	Vinyl Chloride	13000	U	13000	580	
156-59-2	cis-1,2-Dichloroethene	**1700**	J	13000	500	
10061-01-5	cis-1,3-Dichloropropene	13000	U	13000	500	
179601-23-1	m,p-Xylenes	13000	U	13000	500	
123-86-4	n-Butyl Acetate	**420000**		13000	530	
95-47-6	o-Xylene	13000	U	13000	500	
156-60-5	trans-1,2-Dichloroethene	13000	U	13000	500	
10061-02-6	trans-1,3-Dichloropropene	13000	U	13000	500	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/9/11 16:01	
Dibromofluoromethane	100	89-119	8/9/11 16:01	
Toluene-d8	106	87-121	8/9/11 16:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1022
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/11/11 12:36
Sample Name:	LC34-BW0003E-052.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-011	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	257194
Data File Name:	star849.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**3.3**		1.0	
74-85-1	Ethene	**1.7**		1.0	
74-82-8	Methane	**30**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1022
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/22/11 15:05
Sample Name:	LC34-BW0003E-052.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-011	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006194.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**870**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**360**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0943
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003F-059.5-20110802		
Lab Code:	R1104287-012	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.5**		mg/L	1.0	10	NA	8/5/11 22:10	
Carbon, Total Organic (TOC), Average	9060A	**107**		mg/L	10	10	NA	8/13/11 17:59	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 15:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0943
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 19:42
Sample Name:	LC34-BW0003F-059.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2692.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	13	U	13	0.58	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	13	0.50	
79-00-5	1,1,2-Trichloroethane	13	U	13	0.58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	13	U	13	0.78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	13	U	13	0.50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	13	U	13	0.73	
120-82-1	1,2,4-Trichlorobenzene	13	U	13	0.65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	0.95	
106-93-4	1,2-Dibromoethane	13	U	13	0.50	
95-50-1	1,2-Dichlorobenzene	13	U	13	0.50	
107-06-2	1,2-Dichloroethane	13	U	13	0.50	
78-87-5	1,2-Dichloropropane	13	U	13	0.71	
541-73-1	1,3-Dichlorobenzene	13	U	13	0.50	
106-46-7	1,4-Dichlorobenzene	13	U	13	0.50	
71-36-3	n-Butanol	**18000**		630	27	
78-93-3	2-Butanone (MEK)	25	U	25	1.3	
591-78-6	2-Hexanone	25	U	25	0.88	
108-10-1	4-Methyl-2-pentanone	25	U	25	0.68	
67-64-1	Acetone	**4.2**	J	50	2.5	
71-43-2	Benzene	13	U	13	0.53	
75-27-4	Bromodichloromethane	13	U	13	0.50	
75-25-2	Bromoform	13	U	13	0.68	
74-83-9	Bromomethane	13	U	13	0.78	
75-15-0	Carbon Disulfide	25	U	25	0.50	
56-23-5	Carbon Tetrachloride	13	U	13	0.68	
108-90-7	Chlorobenzene	13	U	13	0.50	
75-00-3	Chloroethane	13	U	13	0.78	
67-66-3	Chloroform	13	U	13	0.55	
74-87-3	Chloromethane	13	U	13	0.60	
110-82-7	Cyclohexane	25	U	25	0.60	
124-48-1	Dibromochloromethane	13	U	13	0.50	
75-71-8	Dichlorodifluoromethane (CFC 12)	13	U	13	1.5	
75-09-2	Dichloromethane	**0.55**	J	13	0.55	
100-41-4	Ethylbenzene	13	U	13	0.50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0943
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 19:42
Sample Name:	LC34-BW0003F-059.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2692.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	13	U	13	0.50	
79-20-9	Methyl Acetate	25	U	25	0.58	
1634-04-4	Methyl tert-Butyl Ether	13	U	13	0.50	
108-87-2	Methylcyclohexane	25	U	25	0.63	
100-42-5	Styrene	13	U	13	0.50	
127-18-4	Tetrachloroethene (PCE)	13	U	13	0.50	
108-88-3	Toluene	13	U	13	0.50	
79-01-6	Trichloroethene (TCE)	**2.7**	J	13	0.58	
75-69-4	Trichlorofluoromethane (CFC 11)	13	U	13	0.50	
75-01-4	Vinyl Chloride	**1.3**	J	13	0.58	
156-59-2	cis-1,2-Dichloroethene	**13**	J	13	0.50	
10061-01-5	cis-1,3-Dichloropropene	13	U	13	0.50	
179601-23-1	m,p-Xylenes	13	U	13	0.50	
123-86-4	n-Butyl Acetate	**93**		13	0.53	
95-47-6	o-Xylene	13	U	13	0.50	
156-60-5	trans-1,2-Dichloroethene	13	U	13	0.50	
10061-02-6	trans-1,3-Dichloropropene	13	U	13	0.50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	8/9/11 19:42	
Dibromofluoromethane	101	89-119	8/9/11 19:42	
Toluene-d8	108	87-121	8/9/11 19:42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0943
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003F-059.5-20110802	**Units:**	µg/L
Lab Code:	R1104287-012	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	8/11/11 12:52		257194	
Ethene	1.0	U	1.0	1	NA	8/11/11 12:52		257194	
Methane	750	D	20	10	NA	8/11/11 13:07		257194	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 0943
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/23/11 18:50
Sample Name:	LC34-BW0003F-059.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-012	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258678
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082311\X0006227.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**140**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**58**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**13**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1141
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 19:05
Sample Name:	LC34-BW0002D-045.5-20110802-D	**Units:**	µg/L
Lab Code:	R1104287-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2691.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	**4300**	J	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	**98**	J	1000	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	**14**	J	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	**11**	J	250	11	
100-41-4	Ethylbenzene	250	U	250	10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1141
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 19:05
Sample Name:	LC34-BW0002D-045.5-20110802-D	**Units:**	µg/L
Lab Code:	R1104287-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2691.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**41**	J	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**1100**		250	12	
156-59-2	cis-1,2-Dichloroethene	**8100**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	**81**	J	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**63**	J	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/9/11 19:05	
Dibromofluoromethane	102	89-119	8/9/11 19:05	
Toluene-d8	107	87-121	8/9/11 19:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1222
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003B-031.5-20110802-D		
Lab Code:	R1104287-014	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	99		mg/L	10	10	NA	8/13/11 18:39	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1100
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-BW0003C-038.5-20110802-D		
Lab Code:	R1104287-015	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Sulfide, Total	SM 4500-S2- F	**14.7**		mg/L	1.0	1	NA	8/5/11 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1311
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 14:47
Sample Name:	LC34-BW0002F-059.5-20110802-D	**Units:**	µg/L
Lab Code:	R1104287-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2684.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	13	U	13	0.58	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	13	0.50	
79-00-5	1,1,2-Trichloroethane	13	U	13	0.58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	13	U	13	0.78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	13	U	13	0.50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	13	U	13	0.73	
120-82-1	1,2,4-Trichlorobenzene	13	U	13	0.65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	0.95	
106-93-4	1,2-Dibromoethane	13	U	13	0.50	
95-50-1	1,2-Dichlorobenzene	13	U	13	0.50	
107-06-2	1,2-Dichloroethane	13	U	13	0.50	
78-87-5	1,2-Dichloropropane	13	U	13	0.71	
541-73-1	1,3-Dichlorobenzene	13	U	13	0.50	
106-46-7	1,4-Dichlorobenzene	13	U	13	0.50	
71-36-3	n-Butanol	630	U	630	27	
78-93-3	2-Butanone (MEK)	25	U	25	1.3	
591-78-6	2-Hexanone	25	U	25	0.88	
108-10-1	4-Methyl-2-pentanone	25	U	25	0.68	
67-64-1	Acetone	**4.7**	J	50	2.5	
71-43-2	Benzene	13	U	13	0.53	
75-27-4	Bromodichloromethane	**0.55**	J	13	0.50	
75-25-2	Bromoform	13	U	13	0.68	
74-83-9	Bromomethane	13	U	13	0.78	
75-15-0	Carbon Disulfide	**0.53**	J	25	0.50	
56-23-5	Carbon Tetrachloride	13	U	13	0.68	
108-90-7	Chlorobenzene	13	U	13	0.50	
75-00-3	Chloroethane	13	U	13	0.78	
67-66-3	Chloroform	**2.2**	J	13	0.55	
74-87-3	Chloromethane	13	U	13	0.60	
110-82-7	Cyclohexane	25	U	25	0.60	
124-48-1	Dibromochloromethane	13	U	13	0.50	
75-71-8	Dichlorodifluoromethane (CFC 12)	13	U	13	1.5	
75-09-2	Dichloromethane	13	U	13	0.55	
100-41-4	Ethylbenzene	13	U	13	0.50	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11 1311
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 14:47
Sample Name:	LC34-BW0002F-059.5-20110802-D	**Units:**	µg/L
Lab Code:	R1104287-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2684.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	13	U	13	0.50	
79-20-9	Methyl Acetate	25	U	25	0.58	
1634-04-4	Methyl tert-Butyl Ether	13	U	13	0.50	
108-87-2	Methylcyclohexane	25	U	25	0.63	
100-42-5	Styrene	13	U	13	0.50	
127-18-4	Tetrachloroethene (PCE)	13	U	13	0.50	
108-88-3	Toluene	13	U	13	0.50	
79-01-6	Trichloroethene (TCE)	**2.1**	J	13	0.58	
75-69-4	Trichlorofluoromethane (CFC 11)	13	U	13	0.50	
75-01-4	Vinyl Chloride	**370**		13	0.58	
156-59-2	cis-1,2-Dichloroethene	**100**		13	0.50	
10061-01-5	cis-1,3-Dichloropropene	13	U	13	0.50	
179601-23-1	m,p-Xylenes	13	U	13	0.50	
123-86-4	n-Butyl Acetate	13	U	13	0.53	
95-47-6	o-Xylene	13	U	13	0.50	
156-60-5	trans-1,2-Dichloroethene	**2.7**	J	13	0.50	
10061-02-6	trans-1,3-Dichloropropene	13	U	13	0.50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	8/9/11 14:47	
Dibromofluoromethane	104	89-119	8/9/11 14:47	
Toluene-d8	106	87-121	8/9/11 14:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/20/11 23:58
Sample Name:	LC34-FD-20110802-08	**Units:**	mg/L
Lab Code:	R1104287-017	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258188
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081911\X0006184.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**620**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**310**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-FD-20110802-05		
Lab Code:	R1104287-018	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	8/5/11 22:24	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 15:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-FD-20110802-06		
Lab Code:	R1104287-019	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.0**		mg/L	1.0	10	NA	8/5/11 22:37	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 16:02	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-FD-20110802-03		
Lab Code:	R1104287-020	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**13.8**		mg/L	1.0	1	NA	8/13/11 19:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-FD-20110802-07	**Units:**	µg/L
Lab Code:	R1104287-021	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**12**		1.0	1	NA	8/11/11 13:18		257194	
Ethene	**250**	D	5.0	5	NA	8/11/11 13:35		257194	
Methane	**110**	D	10	5	NA	8/11/11 13:35		257194	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-FD-20110802-02	**Units:**	µg/L
Lab Code:	R1104287-022	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	8/11/11 13:46		257194	
Ethene	1.0	U	1.0	1	NA	8/11/11 13:46		257194	
Methane	**850**	D	20	10	NA	8/11/11 14:04		257194	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-FD-20110802-01		
Lab Code:	R1104287-023	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**53.2**		mg/L	2.0	10	NA	8/4/11 09:15	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/4/11 08:31	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/4/11 09:15	
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/3/11 20:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
Sample Name:	LC34-FD-20110802-04		
Lab Code:	R1104287-024	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**746**		mg/L	2.0	1	NA	8/16/11 09:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 14:10
Sample Name:	LC34-TB-20110802	**Units:**	µg/L
Lab Code:	R1104287-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2683.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 2/11
Sample Matrix:	Water	**Date Received:**	8/ 3/11
		Date Analyzed:	8/9/11 14:10
Sample Name:	LC34-TB-20110802	**Units:**	µg/L
Lab Code:	R1104287-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2683.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/9/11 14:10	
Dibromofluoromethane	102	89-119	8/9/11 14:10	
Toluene-d8	106	87-121	8/9/11 14:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 3/11 1552
Sample Matrix:	Water	**Date Received:**	8/ 5/11
		Date Analyzed:	8/9/11 16:38
Sample Name:	LC34-IDW183866-20110803	**Units:**	µg/L
Lab Code:	R1104287-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2687.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**380**		250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	**38000**		13000	530	
78-93-3	2-Butanone (MEK)	**430**	J	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	**110**	J	1000	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	**13**	J	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	500	U	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	**58**	J	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	**11**	J	250	11	
100-41-4	Ethylbenzene	250	U	250	10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 3/11 1552
Sample Matrix:	Water	**Date Received:**	8/ 5/11
		Date Analyzed:	8/9/11 16:38
Sample Name:	LC34-IDW183866-20110803	**Units:**	µg/L
Lab Code:	R1104287-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2687.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	
79-20-9	Methyl Acetate	**13**	J	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**120**	J	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**980**		250	12	
156-59-2	cis-1,2-Dichloroethene	**5100**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	**8100**		250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**68**	J	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	8/9/11 16:38	
Dibromofluoromethane	105	89-119	8/9/11 16:38	
Toluene-d8	108	87-121	8/9/11 16:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 3/11 1600
Sample Matrix:	Water	**Date Received:**	8/ 5/11
Sample Name:	LC34-IDW183865-20110803	**Units:**	µg/L
Lab Code:	R1104287-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	8/9/11 17:51		256489	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	8/9/11 17:51		256489	
1,1,2-Trichloroethane	500	U	500	23	100	NA	8/9/11 17:51		256489	
1,1,2-Trichloro-1,2,2-trifluoroethane	**3700**		500	31	100	NA	8/9/11 17:51		256489	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	8/9/11 17:51		256489	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	8/9/11 17:51		256489	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	8/9/11 17:51		256489	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	8/9/11 17:51		256489	
1,2-Dibromoethane	500	U	500	20	100	NA	8/9/11 17:51		256489	
1,2-Dichlorobenzene	500	U	500	20	100	NA	8/9/11 17:51		256489	
1,2-Dichloroethane	500	U	500	20	100	NA	8/9/11 17:51		256489	
1,2-Dichloropropane	500	U	500	29	100	NA	8/9/11 17:51		256489	
1,3-Dichlorobenzene	500	U	500	20	100	NA	8/9/11 17:51		256489	
1,4-Dichlorobenzene	500	U	500	20	100	NA	8/9/11 17:51		256489	
n-Butanol	**150000**		25000	1100	100	NA	8/9/11 17:51		256489	
2-Butanone (MEK)	1000	U	1000	51	100	NA	8/9/11 17:51		256489	
2-Hexanone	1000	U	1000	35	100	NA	8/9/11 17:51		256489	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	8/9/11 17:51		256489	
Acetone	**340**	J	2000	98	100	NA	8/9/11 17:51		256489	
Benzene	500	U	500	21	100	NA	8/9/11 17:51		256489	
Bromodichloromethane	500	U	500	20	100	NA	8/9/11 17:51		256489	
Bromoform	500	U	500	27	100	NA	8/9/11 17:51		256489	
Bromomethane	500	U	500	31	100	NA	8/9/11 17:51		256489	
Carbon Disulfide	1000	U	1000	20	100	NA	8/9/11 17:51		256489	
Carbon Tetrachloride	500	U	500	27	100	NA	8/9/11 17:51		256489	
Chlorobenzene	500	U	500	20	100	NA	8/9/11 17:51		256489	
Chloroethane	500	U	500	31	100	NA	8/9/11 17:51		256489	
Chloroform	**61**	J	500	22	100	NA	8/9/11 17:51		256489	
Chloromethane	500	U	500	24	100	NA	8/9/11 17:51		256489	
Cyclohexane	1000	U	1000	24	100	NA	8/9/11 17:51		256489	
Dibromochloromethane	500	U	500	20	100	NA	8/9/11 17:51		256489	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	8/9/11 17:51		256489	
Dichloromethane	**24**	J	500	22	100	NA	8/9/11 17:51		256489	
Ethylbenzene	500	U	500	20	100	NA	8/9/11 17:51		256489	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	8/9/11 17:51		256489	
Methyl Acetate	**41**	J	1000	23	100	NA	8/9/11 17:51		256489	
Methyl tert-Butyl Ether	500	U	500	20	100	NA	8/9/11 17:51		256489	
Methylcyclohexane	1000	U	1000	25	100	NA	8/9/11 17:51		256489	
Styrene	500	U	500	20	100	NA	8/9/11 17:51		256489	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	8/9/11 17:51		256489	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 3/11 1600
Sample Matrix:	Water	**Date Received:**	8/ 5/11
Sample Name:	LC34-IDW183865-20110803	**Units:**	µg/L
Lab Code:	R1104287-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Toluene	500	U	500	20	100	NA	8/9/11 17:51		256489	
Trichloroethene (TCE)	**4000**		500	23	100	NA	8/9/11 17:51		256489	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	8/9/11 17:51		256489	
Vinyl Chloride	**300**	J	500	23	100	NA	8/9/11 17:51		256489	
cis-1,2-Dichloroethene	**4600**		500	20	100	NA	8/9/11 17:51		256489	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	8/9/11 17:51		256489	
m,p-Xylenes	500	U	500	20	100	NA	8/9/11 17:51		256489	
n-Butyl Acetate	**40000**	D	1000	42	200	NA	8/9/11 21:33		256489	
o-Xylene	500	U	500	20	100	NA	8/9/11 17:51		256489	
trans-1,2-Dichloroethene	**39**	J	500	20	100	NA	8/9/11 17:51		256489	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	8/9/11 17:51		256489	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	8/9/11 17:51	
Dibromofluoromethane	104	89-119	8/9/11 17:51	
Toluene-d8	106	87-121	8/9/11 17:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 3/11
Sample Matrix:	Water	**Date Received:**	8/ 5/11
		Date Analyzed:	8/9/11 17:15
Sample Name:	LC34-TB-20110803	**Units:**	µg/L
Lab Code:	R1104287-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2688.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	87	J	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/ 3/11
Sample Matrix:	Water	**Date Received:**	8/ 5/11
		Date Analyzed:	8/9/11 17:15
Sample Name:	LC34-TB-20110803	**Units:**	µg/L
Lab Code:	R1104287-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	256489
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\080911\J2688.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	**0.48**	J	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	8/9/11 17:15	
Dibromofluoromethane	105	89-119	8/9/11 17:15	
Toluene-d8	108	87-121	8/9/11 17:15	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104287-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	8/16/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/3/11 18:57	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	8/10/11 17:01	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	8/4/11 07:28	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	8/16/11 11:01	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/3/11 18:57	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/4/11 07:28	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	8/3/11 18:57	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	8/5/11 11:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104287-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/5/11 13:12	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	8/13/11 06:03	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	8/16/11 14:37	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/4/11 07:28	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104287-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/5/11 19:10	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/4/11 07:28	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104287-MB4	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/8/11 08:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104287-MB5	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/11/11 20:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107489-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/5/11 13:34		256275	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	8/5/11 13:34		256275	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	8/5/11 13:34		256275	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	8/5/11 13:34		256275	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	8/5/11 13:34		256275	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	8/5/11 13:34		256275	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	8/5/11 13:34		256275	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
n-Butanol	250	U	250	11	1	NA	8/5/11 13:34		256275	
2-Butanone (MEK)	10	U	10	0.51	1	NA	8/5/11 13:34		256275	
2-Hexanone	10	U	10	0.35	1	NA	8/5/11 13:34		256275	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	8/5/11 13:34		256275	
Acetone	**3.2**	J	20	0.98	1	NA	8/5/11 13:34		256275	
Benzene	5.0	U	5.0	0.21	1	NA	8/5/11 13:34		256275	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Bromoform	5.0	U	5.0	0.27	1	NA	8/5/11 13:34		256275	
Bromomethane	5.0	U	5.0	0.31	1	NA	8/5/11 13:34		256275	
Carbon Disulfide	10	U	10	0.20	1	NA	8/5/11 13:34		256275	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	8/5/11 13:34		256275	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Chloroethane	5.0	U	5.0	0.31	1	NA	8/5/11 13:34		256275	
Chloroform	5.0	U	5.0	0.22	1	NA	8/5/11 13:34		256275	
Chloromethane	5.0	U	5.0	0.24	1	NA	8/5/11 13:34		256275	
Cyclohexane	10	U	10	0.24	1	NA	8/5/11 13:34		256275	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	8/5/11 13:34		256275	
Dichloromethane	5.0	U	5.0	0.22	1	NA	8/5/11 13:34		256275	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Methyl Acetate	10	U	10	0.23	1	NA	8/5/11 13:34		256275	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107489-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Methylcyclohexane	10	U	10	0.25	1	NA	8/5/11 13:34		256275	
Styrene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Toluene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	8/5/11 13:34		256275	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	8/5/11 13:34		256275	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	8/5/11 13:34		256275	
o-Xylene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/5/11 13:34		256275	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/5/11 13:34	
Dibromofluoromethane	103	89-119	8/5/11 13:34	
Toluene-d8	99	87-121	8/5/11 13:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107573-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/8/11 14:05		256488	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	8/8/11 14:05		256488	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	8/8/11 14:05		256488	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	8/8/11 14:05		256488	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	8/8/11 14:05		256488	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	8/8/11 14:05		256488	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	8/8/11 14:05		256488	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
n-Butanol	250	U	250	11	1	NA	8/8/11 14:05		256488	
2-Butanone (MEK)	10	U	10	0.51	1	NA	8/8/11 14:05		256488	
2-Hexanone	10	U	10	0.35	1	NA	8/8/11 14:05		256488	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	8/8/11 14:05		256488	
Acetone	20	U	20	0.98	1	NA	8/8/11 14:05		256488	
Benzene	5.0	U	5.0	0.21	1	NA	8/8/11 14:05		256488	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Bromoform	5.0	U	5.0	0.27	1	NA	8/8/11 14:05		256488	
Bromomethane	5.0	U	5.0	0.31	1	NA	8/8/11 14:05		256488	
Carbon Disulfide	10	U	10	0.20	1	NA	8/8/11 14:05		256488	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	8/8/11 14:05		256488	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Chloroethane	5.0	U	5.0	0.31	1	NA	8/8/11 14:05		256488	
Chloroform	5.0	U	5.0	0.22	1	NA	8/8/11 14:05		256488	
Chloromethane	5.0	U	5.0	0.24	1	NA	8/8/11 14:05		256488	
Cyclohexane	10	U	10	0.24	1	NA	8/8/11 14:05		256488	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	8/8/11 14:05		256488	
Dichloromethane	5.0	U	5.0	0.22	1	NA	8/8/11 14:05		256488	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Methyl Acetate	10	U	10	0.23	1	NA	8/8/11 14:05		256488	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107573-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Methylcyclohexane	10	U	10	0.25	1	NA	8/8/11 14:05		256488	
Styrene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Toluene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	8/8/11 14:05		256488	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	8/8/11 14:05		256488	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	8/8/11 14:05		256488	
o-Xylene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/8/11 14:05		256488	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	8/8/11 14:05	
Dibromofluoromethane	103	89-119	8/8/11 14:05	
Toluene-d8	106	87-121	8/8/11 14:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107575-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/9/11 13:32		256489	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	8/9/11 13:32		256489	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	8/9/11 13:32		256489	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	8/9/11 13:32		256489	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	8/9/11 13:32		256489	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	8/9/11 13:32		256489	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	8/9/11 13:32		256489	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
n-Butanol	250	U	250	11	1	NA	8/9/11 13:32		256489	
2-Butanone (MEK)	10	U	10	0.51	1	NA	8/9/11 13:32		256489	
2-Hexanone	10	U	10	0.35	1	NA	8/9/11 13:32		256489	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	8/9/11 13:32		256489	
Acetone	20	U	20	0.98	1	NA	8/9/11 13:32		256489	
Benzene	5.0	U	5.0	0.21	1	NA	8/9/11 13:32		256489	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Bromoform	5.0	U	5.0	0.27	1	NA	8/9/11 13:32		256489	
Bromomethane	5.0	U	5.0	0.31	1	NA	8/9/11 13:32		256489	
Carbon Disulfide	10	U	10	0.20	1	NA	8/9/11 13:32		256489	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	8/9/11 13:32		256489	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Chloroethane	5.0	U	5.0	0.31	1	NA	8/9/11 13:32		256489	
Chloroform	5.0	U	5.0	0.22	1	NA	8/9/11 13:32		256489	
Chloromethane	5.0	U	5.0	0.24	1	NA	8/9/11 13:32		256489	
Cyclohexane	10	U	10	0.24	1	NA	8/9/11 13:32		256489	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	8/9/11 13:32		256489	
Dichloromethane	5.0	U	5.0	0.22	1	NA	8/9/11 13:32		256489	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Methyl Acetate	10	U	10	0.23	1	NA	8/9/11 13:32		256489	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107575-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Methylcyclohexane	10	U	10	0.25	1	NA	8/9/11 13:32		256489	
Styrene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Toluene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	8/9/11 13:32		256489	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	8/9/11 13:32		256489	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	8/9/11 13:32		256489	
o-Xylene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/9/11 13:32		256489	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	8/9/11 13:32	
Dibromofluoromethane	103	89-119	8/9/11 13:32	
Toluene-d8	106	87-121	8/9/11 13:32	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/16/11 13:37
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108014-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	257676
Data File Name:	J:\ACQUDATA\msvoa10\data\081611\D4124.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/16/11 13:37
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108014-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	257676
Data File Name:	J:\ACQUDATA\msvoa10\data\081611\D4124.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	8/16/11 13:37	
Dibromofluoromethane	98	89-119	8/16/11 13:37	
Toluene-d8	101	87-121	8/16/11 13:37	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107801-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	8/10/11 10:10		257189	
Ethene	1.0	U	1.0	1	NA	8/10/11 10:10		257189	
Methane	2.0	U	2.0	1	NA	8/10/11 10:10		257189	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107803-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	8/11/11 09:06		257194	
Ethene	1.0	U	1.0	1	NA	8/11/11 09:06		257194	
Methane	2.0	U	2.0	1	NA	8/11/11 09:06		257194	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/19/11 13:48
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1108119-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258188
Data File Name:	J:\ACQUDATA\HPLC05\DATA\081911\X0006150.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/22/11 11:12
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1108162-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258360
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082211\X0006189.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/23/11 13:53
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1108248-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258678
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082311\X0006222.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Collected: 8/2/11
Date Received: 8/3/11
Date Analyzed: 8/ 3/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-BW0002C-038.5-20110802
Lab Code: R1104287-003

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0002C-038.5-20110802DUP Duplicate Sample R1104287-003DUP1 Result	Average	RPD	RPD Limit
Bromide	300.0	1.0	7.6	8.6	8.07	13	20
Sulfate	300.0	2.0	2.0 U	2.0 U	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Collected: 8/2/11
Date Received: 8/3/11
Date Analyzed: 8/ 3/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0002C-038.5-20110802
Lab Code: R1104287-003

Units: mg/L
Basis: NA

Analytical Method: 300.0

LC34-BW0002C-038.5-201108
02MS
Matrix Spike
R1104287-003MS1

Analyte Name	Sample Result	Spike Result	Spike Amount	% Rec		% Rec Limits
Bromide	7.6	16.3	10.0	88	*	90 - 110
Sulfate	ND	21.4	20.0	107		90 - 110

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Collected: 8/2/11
Date Received: 8/3/11
Date Analyzed: 8/ 8/11 - 8/10/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-BW0003B-031.5-20110802
Lab Code: R1104287-008

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0003B-031.5-20110802DUP Duplicate Sample R1104287-008DUP3 Result	Average	RPD	RPD Limit
Bromide	300.0	1.0	7.7	7.8	7.75	1	20
Carbon, Total Organic (TOC), Average	9060A	10	89	89	88.9	<1	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Collected: 8/2/11
Date Received: 8/3/11
Date Analyzed: 8/ 8/11 - 8/10/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0003B-031.5-20110802
Lab Code: R1104287-008

Units: mg/L
Basis: NA

LC34-BW0003B-031.5-20110802MS
Matrix Spike
R1104287-008MS3

Analyte Name	Method	Sample Result	Spike Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	7.7	17.3	10.0	96	90 - 110
Carbon, Total Organic (TOC), Average	9060A	89	186	100	97	62 - 135

Results flagged with an asterisk (*) indicate values outside control criteria.
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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Collected: 8/2/11
Date Received: 8/3/11
Date Analyzed: 8/16/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-BW0003D-045.5-20110802
Lab Code: R1104287-010

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0003D-045.5-20110802DUP Duplicate Sample R1104287-010DUP5 Result	Average	RPD	RPD Limit
Iodide	300.0	2.0	2.0 U	2.0 U	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.
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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Collected:**	8/2/11
Sample Matrix:	Water	**Date Received:**	8/3/11
		Date Analyzed:	8/16/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	LC34-BW0003D-045.5-20110802	**Units:**	mg/L
Lab Code:	R1104287-010	**Basis:**	NA

Analytical Method: 300.0

LC34-BW0003D-045.5-201108
02MS
Matrix Spike
R1104287-010MS5

Analyte Name	Sample Result	Result	Spike Amount	% Rec		% Rec Limits
Iodide	ND	12.8	10.0	128	*	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Collected: 8/2/11
Date Received: 8/3/11
Date Analyzed: 8/22/11

Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: LC34-BW0002A-024.5-20110802
Lab Code: R1104287-001

Units: mg/L
Basis: NA

Analytical Method: Organic Acids

Analyte Name	Sample Result	LC34-BW0002A-024.5-20110802MS Matrix Spike RQ1108162-04 Result	Spike Amount	% Rec	LC34-BW0002A-024.5-20110802DMS Duplicate Matrix Spike RQ1108162-05 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Pyruvic Acid	ND	0.950	1.00	95	0.940	1.00	94	25 - 152	1	30
Acetic Acid	13	21.4	10.0	79	21.4	10.0	79	13 - 167	<1	30
Butanoic Acid (Butyric Acid)	ND	11.2	10.0	112	10.7	10.0	107	49 - 145	5	30
Lactic Acid	ND	9.48	9.97	95	9.58	9.97	96	27 - 127	1	30
Propionic Acid	ND	9.31	9.97	93	9.11	9.97	91	68 - 133	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.
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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104287-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1104287-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.65	5.2	108	5.49	5.2	105	56 - 138	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 3/11 - 8/16/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104287-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.06	1.00	106	90 - 110
Chloride	300.0	1.99	2.00	100	90 - 110
Iodide	300.0	1.04	1.00	104	90 - 110
Nitrate as Nitrogen	300.0	1.07	1.00	107	90 - 110
Sulfate	300.0	1.91	2.00	96	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.9	20.0	100	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.1	10.0	101	86 - 117
Nitrite as Nitrogen	300.0	1.01	1.00	101	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104287
Project:	LC34 PED TR0272 8/2/11	**Date Analyzed:**	8/ 4/11 - 8/16/11
Sample Matrix:	Water		

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1104287-LCS3			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Bromide	300.0	1.06	1.00	106	90 - 110
Iodide	300.0	1.02	1.00	102	90 - 110
Nitrate as Nitrogen	300.0	1.07	1.00	107	90 - 110
Carbon, Total Organic (TOC), Average	9060A	10.1	10.0	101	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 4/11 - 8/ 5/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104287-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.01	1.00	101	90 - 110
Nitrate as Nitrogen	300.0	1.03	1.00	103	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 8/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104287-LCS5 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.05	1.00	105	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/11/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104287-LCS6 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.08	1.00	108	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256275

	Lab Control Sample RQ1107489-04			Duplicate Lab Control Sample RQ1107489-05					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	19.7	20.0	99	17.8	20.0	89	72 - 128	10	30
1,1,2,2-Tetrachloroethane	20.7	20.0	103	20.5	20.0	103	72 - 131	<1	30
1,1,2-Trichloroethane	21.3	20.0	106	21.3	20.0	107	80 - 122	<1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	18.0	20.0	90	16.4	20.0	82	68 - 136	9	30
1,1-Dichloroethane (1,1-DCA)	21.7	20.0	109	20.9	20.0	105	76 - 124	4	30
1,1-Dichloroethene (1,1-DCE)	18.7	20.0	93	18.1	20.0	91	72 - 129	3	30
1,2,4-Trichlorobenzene	19.1	20.0	96	18.8	20.0	94	70 - 133	2	30
1,2-Dibromo-3-chloropropane (DBCP)	17.5	20.0	88	19.3	20.0	97	62 - 131	10	30
1,2-Dibromoethane	20.1	20.0	100	20.2	20.0	101	78 - 125	<1	30
1,2-Dichlorobenzene	19.5	20.0	98	19.6	20.0	98	79 - 124	<1	30
1,2-Dichloroethane	20.6	20.0	103	19.7	20.0	99	73 - 127	4	30
1,2-Dichloropropane	23.6	20.0	118	23.1	20.0	115	80 - 123	2	30
1,3-Dichlorobenzene	19.0	20.0	95	18.9	20.0	94	78 - 124	<1	30
1,4-Dichlorobenzene	19.6	20.0	98	19.2	20.0	96	78 - 123	2	30
n-Butanol	1140	1000	114	1210	1000	121	70 - 130	6	30
2-Butanone (MEK)	20.3	20.0	102	21.4	20.0	107	60 - 133	5	30
2-Hexanone	19.2	20.0	96	19.6	20.0	98	61 - 131	2	30
4-Methyl-2-pentanone	18.9	20.0	95	19.6	20.0	98	61 - 132	4	30
Acetone	20.2	20.0	101	20.3	20.0	102	54 - 139	<1	30
Benzene	21.9	20.0	109	20.7	20.0	104	78 - 121	5	30
Bromodichloromethane	20.4	20.0	102	19.9	20.0	100	80 - 125	2	30
Bromoform	18.0	20.0	90	17.7	20.0	88	68 - 130	2	30
Bromomethane	16.4	20.0	82	15.2	20.0	76	57 - 144	8	30
Carbon Disulfide	19.9	20.0	99	19.4	20.0	97	52 - 140	3	30
Carbon Tetrachloride	18.9	20.0	95	17.0	20.0	85	68 - 133	10	30
Chlorobenzene	20.3	20.0	102	20.1	20.0	100	80 - 121	1	30
Chloroethane	23.4	20.0	117	21.8	20.0	109	71 - 130	7	30
Chloroform	20.7	20.0	103	19.9	20.0	100	78 - 125	4	30
Chloromethane	21.3	20.0	107	19.9	20.0	99	61 - 138	7	30
Cyclohexane	20.4	20.0	102	24.3	20.0	121	57 - 126	17	30
Dibromochloromethane	18.9	20.0	95	18.6	20.0	93	78 - 133	2	30
Dichlorodifluoromethane (CFC 12)	18.8	20.0	94	17.9	20.0	89	45 - 159	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 5/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256275

Analyte Name	Lab Control Sample RQ1107489-04 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1107489-05 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Dichloromethane	20.3	20.0	102	19.1	20.0	96	75 - 125	6	30
Ethylbenzene	21.0	20.0	105	19.6	20.0	98	78 - 123	7	30
Isopropylbenzene (Cumene)	21.7	20.0	109	20.6	20.0	103	73 - 133	5	30
Methyl Acetate	19.5	20.0	98	19.9	20.0	99	57 - 157	2	30
Methyl tert-Butyl Ether	20.3	20.0	101	20.0	20.0	100	75 - 126	1	30
Methylcyclohexane	18.8	20.0	94	22.0	20.0	110	61 - 125	16	30
Styrene	20.4	20.0	102	20.2	20.0	101	80 - 132	1	30
Tetrachloroethene (PCE)	19.3	20.0	97	18.2	20.0	91	72 - 131	6	30
Toluene	21.0	20.0	105	19.6	20.0	98	78 - 122	7	30
Trichloroethene (TCE)	20.8	20.0	104	19.1	20.0	96	74 - 127	8	30
Trichlorofluoromethane (CFC 11)	20.2	20.0	101	19.2	20.0	96	69 - 141	5	30
Vinyl Chloride	25.6	20.0	128	23.2	20.0	116	72 - 138	10	30
cis-1,2-Dichloroethene	21.1	20.0	105	20.2	20.0	101	78 - 122	4	30
cis-1,3-Dichloropropene	20.0	20.0	100	19.7	20.0	98	77 - 125	2	30
m,p-Xylenes	41.6	40.0	104	39.8	40.0	99	79 - 126	4	30
n-Butyl Acetate	18.3	20.0	92	19.6	20.0	98	31 - 144	7	30
o-Xylene	20.7	20.0	103	20.2	20.0	101	77 - 118	2	30
trans-1,2-Dichloroethene	20.5	20.0	102	18.9	20.0	95	75 - 121	8	30
trans-1,3-Dichloropropene	19.0	20.0	95	18.5	20.0	93	69 - 127	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256488

Analyte Name	Lab Control Sample RQ1107573-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.5	20.0	87	72 - 128
1,1,2,2-Tetrachloroethane	16.4	20.0	82	72 - 131
1,1,2-Trichloroethane	17.3	20.0	87	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.6	20.0	93	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.3	20.0	96	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.7	20.0	94	72 - 129
1,2,4-Trichlorobenzene	22.7	20.0	113	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84	62 - 131
1,2-Dibromoethane	17.3	20.0	87	78 - 125
1,2-Dichlorobenzene	18.5	20.0	92	79 - 124
1,2-Dichloroethane	17.3	20.0	86	73 - 127
1,2-Dichloropropane	17.7	20.0	89	80 - 123
1,3-Dichlorobenzene	19.4	20.0	97	78 - 124
1,4-Dichlorobenzene	19.4	20.0	97	78 - 123
n-Butanol	1230	1000	123	70 - 130
2-Butanone (MEK)	15.8	20.0	79	60 - 133
2-Hexanone	15.2	20.0	76	61 - 131
4-Methyl-2-pentanone	15.9	20.0	79	61 - 132
Acetone	17.2	20.0	86	54 - 139
Benzene	17.6	20.0	88	78 - 121
Bromodichloromethane	17.0	20.0	85	80 - 125
Bromoform	16.8	20.0	84	68 - 130
Bromomethane	17.1	20.0	85	57 - 144
Carbon Disulfide	19.2	20.0	96	52 - 140
Carbon Tetrachloride	18.0	20.0	90	68 - 133
Chlorobenzene	18.0	20.0	90	80 - 121
Chloroethane	20.1	20.0	101	71 - 130
Chloroform	17.9	20.0	90	78 - 125
Chloromethane	19.7	20.0	99	61 - 138
Cyclohexane	21.3	20.0	106	57 - 126
Dibromochloromethane	18.1	20.0	91	78 - 133
Dichlorodifluoromethane (CFC 12)	22.6	20.0	113	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 8/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256488

Analyte Name	Lab Control Sample RQ1107573-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	17.9	20.0	89	75 - 125
Ethylbenzene	18.7	20.0	93	78 - 123
Isopropylbenzene (Cumene)	21.2	20.0	106	73 - 133
Methyl Acetate	15.9	20.0	79	57 - 157
Methyl tert-Butyl Ether	16.2	20.0	81	75 - 126
Methylcyclohexane	22.0	20.0	110	61 - 125
Styrene	18.3	20.0	91	80 - 132
Tetrachloroethene (PCE)	20.5	20.0	102	72 - 131
Toluene	18.7	20.0	94	78 - 122
Trichloroethene (TCE)	17.5	20.0	87	74 - 127
Trichlorofluoromethane (CFC 11)	19.6	20.0	98	69 - 141
Vinyl Chloride	21.6	20.0	108	72 - 138
cis-1,2-Dichloroethene	19.1	20.0	95	78 - 122
cis-1,3-Dichloropropene	17.2	20.0	86	77 - 125
m,p-Xylenes	38.0	40.0	95	79 - 126
n-Butyl Acetate	17.5	20.0	87	31 - 144
o-Xylene	18.4	20.0	92	77 - 118
trans-1,2-Dichloroethene	18.5	20.0	93	75 - 121
trans-1,3-Dichloropropene	16.7	20.0	84	69 - 127

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 9/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256489

Analyte Name	Lab Control Sample RQ1107575-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.8	20.0	84	72 - 128
1,1,2,2-Tetrachloroethane	16.9	20.0	84	72 - 131
1,1,2-Trichloroethane	17.4	20.0	87	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.5	20.0	87	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.1	20.0	96	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.2	20.0	91	72 - 129
1,2,4-Trichlorobenzene	22.2	20.0	111	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	15.9	20.0	79	62 - 131
1,2-Dibromoethane	17.2	20.0	86	78 - 125
1,2-Dichlorobenzene	18.6	20.0	93	79 - 124
1,2-Dichloroethane	17.7	20.0	89	73 - 127
1,2-Dichloropropane	18.4	20.0	92	80 - 123
1,3-Dichlorobenzene	19.3	20.0	97	78 - 124
1,4-Dichlorobenzene	19.6	20.0	98	78 - 123
n-Butanol	1260	1000	125	70 - 130
2-Butanone (MEK)	16.6	20.0	83	60 - 133
2-Hexanone	16.5	20.0	83	61 - 131
4-Methyl-2-pentanone	17.3	20.0	86	61 - 132
Acetone	18.9	20.0	94	54 - 139
Benzene	17.8	20.0	89	78 - 121
Bromodichloromethane	17.3	20.0	87	80 - 125
Bromoform	16.0	20.0	80	68 - 130
Bromomethane	16.1	20.0	81	57 - 144
Carbon Disulfide	19.6	20.0	98	52 - 140
Carbon Tetrachloride	17.5	20.0	87	68 - 133
Chlorobenzene	18.1	20.0	91	80 - 121
Chloroethane	20.8	20.0	104	71 - 130
Chloroform	18.0	20.0	90	78 - 125
Chloromethane	20.1	20.0	100	61 - 138
Cyclohexane	20.6	20.0	103	57 - 126
Dibromochloromethane	17.9	20.0	90	78 - 133
Dichlorodifluoromethane (CFC 12)	22.6	20.0	113	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/ 9/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 256489

Analyte Name	Lab Control Sample RQ1107575-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.5	20.0	92	75 - 125
Ethylbenzene	18.2	20.0	91	78 - 123
Isopropylbenzene (Cumene)	20.3	20.0	102	73 - 133
Methyl Acetate	16.5	20.0	82	57 - 157
Methyl tert-Butyl Ether	16.0	20.0	80	75 - 126
Methylcyclohexane	21.4	20.0	107	61 - 125
Styrene	18.3	20.0	92	80 - 132
Tetrachloroethene (PCE)	19.6	20.0	98	72 - 131
Toluene	18.5	20.0	92	78 - 122
Trichloroethene (TCE)	17.7	20.0	88	74 - 127
Trichlorofluoromethane (CFC 11)	18.2	20.0	91	69 - 141
Vinyl Chloride	22.2	20.0	111	72 - 138
cis-1,2-Dichloroethene	18.8	20.0	94	78 - 122
cis-1,3-Dichloropropene	17.8	20.0	89	77 - 125
m,p-Xylenes	38.3	40.0	96	79 - 126
n-Butyl Acetate	17.2	20.0	86	31 - 144
o-Xylene	18.7	20.0	93	77 - 118
trans-1,2-Dichloroethene	18.2	20.0	91	75 - 121
trans-1,3-Dichloropropene	17.2	20.0	86	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/16/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 257676

Analyte Name	Lab Control Sample RQ1108014-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.2	20.0	86	72 - 128
1,1,2,2-Tetrachloroethane	17.3	20.0	87	72 - 131
1,1,2-Trichloroethane	18.7	20.0	93	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.9	20.0	90	68 - 136
1,1-Dichloroethane (1,1-DCA)	17.6	20.0	88	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.1	20.0	86	72 - 129
1,2,4-Trichlorobenzene	18.7	20.0	93	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.6	20.0	83	62 - 131
1,2-Dibromoethane	18.5	20.0	93	78 - 125
1,2-Dichlorobenzene	18.3	20.0	92	79 - 124
1,2-Dichloroethane	17.8	20.0	89	73 - 127
1,2-Dichloropropane	18.2	20.0	91	80 - 123
1,3-Dichlorobenzene	18.1	20.0	90	78 - 124
1,4-Dichlorobenzene	18.0	20.0	90	78 - 123
n-Butanol	901	1000	90	70 - 130
2-Butanone (MEK)	16.2	20.0	81	60 - 133
2-Hexanone	14.9	20.0	74	61 - 131
4-Methyl-2-pentanone	16.5	20.0	82	61 - 132
Acetone	15.9	20.0	79	54 - 139
Benzene	18.3	20.0	91	78 - 121
Bromodichloromethane	18.3	20.0	92	80 - 125
Bromoform	18.1	20.0	91	68 - 130
Bromomethane	19.2	20.0	96	57 - 144
Carbon Disulfide	21.2	20.0	106	52 - 140
Carbon Tetrachloride	17.7	20.0	89	68 - 133
Chlorobenzene	18.5	20.0	93	80 - 121
Chloroethane	19.1	20.0	95	71 - 130
Chloroform	17.9	20.0	90	78 - 125
Chloromethane	17.7	20.0	89	61 - 138
Cyclohexane	16.3	20.0	82	57 - 126
Dibromochloromethane	18.1	20.0	90	78 - 133
Dichlorodifluoromethane (CFC 12)	17.8	20.0	89	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/16/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 257676

Analyte Name	Lab Control Sample RQ1108014-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	17.7	20.0	88	75 - 125
Ethylbenzene	18.7	20.0	94	78 - 123
Isopropylbenzene (Cumene)	20.3	20.0	101	73 - 133
Methyl Acetate	16.7	20.0	83	57 - 157
Methyl tert-Butyl Ether	16.8	20.0	84	75 - 126
Methylcyclohexane	17.3	20.0	87	61 - 125
Styrene	19.3	20.0	96	80 - 132
Tetrachloroethene (PCE)	19.3	20.0	96	72 - 131
Toluene	18.5	20.0	92	78 - 122
Trichloroethene (TCE)	18.7	20.0	94	74 - 127
Trichlorofluoromethane (CFC 11)	19.0	20.0	95	69 - 141
Vinyl Chloride	19.0	20.0	95	72 - 138
cis-1,2-Dichloroethene	18.7	20.0	93	78 - 122
cis-1,3-Dichloropropene	17.8	20.0	89	77 - 125
m,p-Xylenes	38.2	40.0	96	79 - 126
n-Butyl Acetate	15.3	20.0	77	31 - 144
o-Xylene	19.0	20.0	95	77 - 118
trans-1,2-Dichloroethene	17.8	20.0	89	75 - 121
trans-1,3-Dichloropropene	17.3	20.0	87	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/10/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 257189

Lab Control Sample
RQ1107801-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	25.0	26.1	96	56 - 148
Ethene	21.6	24.3	89	58 - 155
Methane	25.2	26.2	96	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/11/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 257194

Analyte Name	Lab Control Sample RQ1107803-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1107803-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	26.8	26.1	103	25.4	26.1	97	56 - 148	5	30
Ethene	22.8	24.3	94	21.7	24.3	89	58 - 155	5	30
Methane	26.8	26.2	102	25.5	26.2	97	55 - 150	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/19/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 258188

	Lab Control Sample RQ1108119-02			Duplicate Lab Control Sample RQ1108119-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.21	1.00	121	1.17	1.00	117	70 - 130	3	30
Acetic Acid	9.72	10.0	97	9.76	10.0	98	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.2	10.0	101	9.62	10.0	96	78 - 113	5	30
Lactic Acid	9.27	9.97	93	9.39	9.97	94	61 - 109	1	30
Propionic Acid	9.64	9.97	97	9.31	9.97	93	80 - 125	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/22/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 258360

	Lab Control Sample RQ1108162-02			Duplicate Lab Control Sample RQ1108162-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.18	1.00	118	1.11	1.00	111	70 - 130	6	30
Acetic Acid	9.92	10.0	99	9.67	10.0	97	70 - 135	3	30
Butanoic Acid (Butyric Acid)	10.6	10.0	106	9.33	10.0	93	78 - 113	13	30
Lactic Acid	9.37	9.97	94	9.28	9.97	93	61 - 109	<1	30
Propionic Acid	9.37	9.97	94	9.47	9.97	95	80 - 125	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 PED TR0272 8/2/11
Sample Matrix: Water

Service Request: R1104287
Date Analyzed: 8/23/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 258678

	Lab Control Sample RQ1108248-02			Duplicate Lab Control Sample RQ1108248-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.10	1.00	110	1.13	1.00	113	70 - 130	3	30
Acetic Acid	9.75	10.0	98	9.78	10.0	98	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.1	10.0	101	9.71	10.0	97	78 - 113	4	30
Lactic Acid	9.23	9.97	93	9.25	9.97	93	61 - 109	<1	30
Propionic Acid	9.20	9.97	92	9.64	9.97	97	80 - 125	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-BW0001E-052.5-201108~~	~~8/ /2011~~			~~W~~	~~16~~	~~3~~	~~2~~	~~1~~	~~3~~	~~1~~	~~3~~	~~1~~	~~1~~	~~1~~	
~~LC34-BW0001F-059.5-201108~~	~~8/ /2011~~			~~W~~	~~16~~	~~3~~	~~2~~	~~1~~	~~3~~	~~1~~	~~3~~	~~1~~	~~1~~	~~1~~	
LC34-BW0002A-024.5-201108 02	8/02/2011	1103	-001	W	12	3	2	1	3		3				
LC34-BW0002B-031.5-201108 02	8/02/2011	1024	-002	W	12	3	2	1	3		3				
LC34-BW0002C-038.5-201108 02	8/02/2011	0937	-003	W	15	3	2	1	3	1	3	1	1		
LC34-BW0002D-045.5-201108 02	8/02/2011	1141	-004	W	12	3	2	1	3		3				
LC34-BW0002E-052.5-201108 02	8/02/2011	1229	-005	W	12	3	2	1	3		3				
LC34-BW0002F-059.5-201108 02	8/02/2011	1311	-006	W	12	3	2	1	3		3				For VOC, only 2
LC34-BW0003A-024.5-201108 02	8/02/2011	1317	-007	W	12	3	2	1	3		3				vials filled.
LC34-BW0003B-031.5-201108 02	8/02/2011	1222	-008	W	12	3	2	1	3		3				

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

R1104287
GeoSyntec Consultants
LC34 PED TR0272 8/2/11

RELINQUISHED BY:

Signature:

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 08/02/11 – 1630

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LaFore

Firm: CAS

Date/Time: 8/3/11 1015

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-BW0003C-038.5-20110802	8/02/2011	1100	-009	W	15	3	2	1	3	1	3	1	1		
LC34-BW0003D-045.5-20110802	8/02/2011	1356	-010	W	12	3	2	1	3		3				
LC34-BW0003E-052.5-20110802	8/02/2011	1022	-011	W	12	3	2	1	3		3				
LC34-BW0003F-059.5-20110802	8/02/2011	0943	-012	W	12	3	2	1	3		3				
~~LC34-RW0007-038.5-201108 -D~~	~~8/ /2011~~			~~W~~	~~3~~	~~3~~									DB
~~LC34-IW0002I-027.5-201108 -D~~	~~8/ /2011~~			~~W~~	~~3~~	~~3~~									
~~LC34-IW0002D-037.5-201108 -D~~	~~8/ /2011~~			W	2		2								
~~LC34-BW0001B-031.5-201108 -D~~	~~8/ /2011~~			~~W~~	1			1							
~~LC34-BW0001D-045.5-201108 -D~~	~~8/ /2011~~			~~W~~	1								1		
LC34-BW0002D-045.5-201108 02-D	8/02/2011	1141	-013	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab.

R1104287
GeoSyntec Consultants
LC34 PED TR0272 8/2/11

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Barrett	Printed Name: FEDEX	Printed Name:	Printed Name: Gregory LaFon
Firm: GEOSYNTEC	Firm:	Firm:	Firm: CAS
Date/Time: 08/02/11 — 1630	Date/Time:	Date/Time:	Date/Time: 8/3/11 1015

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
					Analysis Requested										
LC34-BW0003B-031.5-201108 02 -D	8/02/2011	1222	-014	W	3				3						
LC34-BW0003C-038.5-201108 02 -D	8/02/2011	1100	-015	W	1					1					
~~LC34-BW0008-052.0-201108 -D~~	~~8/ /2011~~			~~W~~	~~1~~							~~1~~			
~~LC34-IW0002D1-052.5-201108 -D~~	~~8/ /2011~~			~~W~~	~~4~~						~~3~~			~~1~~	
LC34-BW0002F-059.5-201108 02 D	8/02/2011	1311	-016	W	3	3									
~~LC34-FD-201108 0~~	~~8/ /2011~~	~~NA~~		~~W~~	~~3~~	~~3~~									
~~LC34-FD-201108 0~~	~~8/ /2011~~	~~NA~~		~~W~~	~~3~~	~~3~~									
~~LC34-FD-201108 -0~~	~~8/ /2011~~	~~NA~~		~~W~~	~~3~~	~~3~~									
~~LC34-FD-201108 -0~~	~~8/ /2011~~	~~NA~~		~~W~~	~~3~~	~~3~~									
LC34-FD-201108 02 0 8	8/02/2011	NA	-017	W	2		2								

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

Invoice Information

P.O. # ____

Bill to: TR0272

R1104287
GeoSyntec Consultants
LC34 PED TR0272 8/2/11

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature:	Signature: [signature]
Printed Name: Joseph Bartlett	Printed Name: FedEx	Printed Name:	Printed Name: Gregory LaFon
Firm: Geosyntec	Firm:	Firm:	Firm: CAS
Date/Time: 08/02/11 – 1630	Date/Time:	Date/Time:	Date/Time: 8/3/11 1015

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
~~LC34-FD-201108 -0~~	8/ /2011	~~NA~~		W	2		2								
LC34-FD-20110802-05	8/02/2011	NA	-018	W	1			1							
LC34-FD-20110802-06	8/02/2011	NA	-019	W	1			1							
~~LC34-FD-201108 -0~~	8/ /2011	~~NA~~		W	1			1							
LC34-FD-20110802-03	8/02/2011	NA	-020	W	3				3						
~~LC34-FD-201108 -0~~	8/ /2011	~~NA~~		W	3				3						
~~LC34-FD-201108 -0~~	8/ /2011	NA		W	1					1					
LC34-FD-20110802-07	8/02/2011	NA	-021	W	3						3				
LC34-FD-20110802-02	8/02/2011	NA	-022	W	3						3				
LC34-FD-20110802-01	8/02/2011	NA	-023	W	1							1			

TURNAROUND REQUIREMENTS

_____ 24 hr _____ 48 hr _____ 5 BD

__X__ Standard (15 BD)

_____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

R1104287
GeoSyntec Consultants
LC34 PED TR0272 8/2/11

Invoice Information

P.O. # _____

Bill to: TR0272

RELINQUISHED BY:

Signature:

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 08/02/11 – 1630

RECEIVED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LaFave

Firm: CAS

Date/Time: 8/3/11 1015

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: TR0272

Project Manager: Cory Repta Company: Geosyntec

Company/Address: 6770 South Washington Ave STE #3 Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-FD-20110802-04	8/02/2011	NA	-024	W	1								1		
~~LC34-FD-201108 -0~~	~~8/ /2011~~	~~NA~~		~~W~~	~~1~~									~~1~~	
LC34-TB-201108 02	8/02/2011	NA	-025	W	3	3									
~~LC34-TB-201108~~	~~8/ /2011~~	~~NA~~		~~W~~	~~3~~	~~3~~									JB
~~LC34-TB-201108~~	~~8/ /2011~~	~~NA~~		~~W~~	~~3~~	~~3~~									
					0										
					0										
					0										
					0										
					0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

for dissolved metals analysis - preservative has been rinsed out of bottles before sampling, please filter in lab

R1104287

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:

Signature:

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 08/02/11 — 1630

RECEIVED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LaFave

Firm: CAS

Date/Time: 8/3/11 0S

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1104287

Cooler received on 8/3/11 by: KD **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	5.3°	2.8°	3.7°	____	____
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	(Yes)	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 8/3/11 1100

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: ____

PC Secondary Review: KB 8/3/11

Cooler Breakdown: Date: 8/4/11 Time: 0715 by: KD

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO	
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

Explain any discrepancies: ____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC103051F	2/16				
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC10 3098C	5/12				
	HCl	*	*	4110080	7/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: ____

Bottle lot numbers: 1-045-004, 1-087-002, 041111-20, 062711-22

Other Comments:

Bubbles - BW0002F (1 vial)
BW0003F (")
BW0003B (")
BW0003E (")
BW0003A (")
BW0003F (")

PC Secondary Review: KB 8/20/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

~~1 Mustard Street, Suite 250, Rochester, NY 14609~~ JB | 585.288.5380 | 800.695.7222 | 585.288.8475 (fax) PAGE 2 OF 2

Project Name: LC34	Project Number: TR0272
Project Manager: CORY REPTA	Report CC: —
Company/Address: GEOSYNTEC	
6770 S. WASHINGTON AVE. STE. 3	
TITUSVILLE, FL 32780	
Phone #: 321-269-5880	E-mail: crepta@geosyntec.com
Sampler's Signature:	Sampler's Printed Name: DAVID SIZEMORE

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 8

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	GC/MS VOA's ☐8260 ☐624 ☐CLP	GC/MS SVOA's ☐8270 ☐625	GC VOA's ☐8021 ☐601/602	PESTICIDES ☐8081 ☐608	PCB's ☐8082 ☐608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	8260C (VOC 4mL)							REMARKS/ ALTERNATE DESCRIPTION
LC34-DPT0333-053.0-20110803		08/03/11	1227	Soil								X							
LC34-DPT0334-034.5-20110803			1404																
LC34-DPT334-037.0-20110803			1413																
LC34-DPT334-045.5-20110803			1457																
LC34-DPT334-047.0-20110803			1507																
LC34-DPT334-048.5-20110803			1513																
LC34-DPT334-053.0-20110803			1532																
~~LC34-DPT-IDW183866-20110803-026~~			1552	Water															
LC34-IDW183865-20110803	-027		1600																
LC34-TB-20110803	-028	NA	NA									X							

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other ICE

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: FL

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
X Standard

REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
X III. Results + QC and Calibration Summaries
____ IV. Data Validation Report

Edata X Yes ____

INVOICE INFORMATION
PO #:
BILL TO:

R1104287
GeoSyntec Consultants
LC34 PED TR0272 8/2/11

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: JOSEPH BARTLETT	Printed Name: FED EX	Printed Name:	Printed Name: Courtney LaFave	Printed Name:	Printed Name:
Firm: GEOSYNTEC	Firm:	Firm:	Firm: CAS	Firm:	Firm:
Date/Time: 08/04/11 1630	Date/Time:	Date/Time:	Date/Time: 8/5/11 0939	Date/Time:	Date/Time:

Distribution: White - Lab Copy; Yellow - Return To Originator

SCOC Rev. 10/2010

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R11-4287

Cooler received on 8/5/11 by: AO **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO		
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO		
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO		
4.	Did (VOA vials), Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A	IDW 183866 (1 vial)
5.	Were **Ice** or **Ice packs** present?	(YES)	NO		
6.	Where did the bottles originate?	(CAS/ROC), CLIENT			
7.	Temperature of cooler(s) upon receipt:	3.1°			

Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 8/5/11 0948

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 8/30/11

Cooler Breakdown: Date: 8/5/11 Time: 1706 by: DW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-087-002

Other Comments:

PC Secondary Review: KB 8/30/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

August 25, 2011 Service Request No: R1104376

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34 TR0272 Soils

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on August 5, 2011. For your reference, these analyses have been assigned our service request number **R1104376**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	Geosyntec	**Service Request No.:**	R1104376
Project:	ESTCP PED LC34/ TR0272 8/3/11	**Date Received:**	8/5/11
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Seventeen (17) soil samples were collected by the client on 8/3/11 and were received for analysis at Columbia Analytical Services on 8/5/11 via a national courier. The samples were received at a cooler temperature of 3.1°C, within the 0-6°C guidelines.

Volatile Organic Compounds

Seventeen (17) soil samples were analyzed for a client specific list of Volatile Organics by Method 8260C. All samples were analyzed for % Solids in order to report the data on a dry weight basis.

Methanol (MeOH) extracts for sample locations LC34-DPT0332-045.0-20110803 (CAS # R1104376-003), LC34-DPT0333-048.5-20110803 (CAS# R1104376-010) and LC34-DPT0334-045.5-20110803 (CAS# R1104376-014) either had some loss or no methanol in the vials. The Medium levels were prepared using the % Solids aliquots: 5 grams sample/ 10 ml MeOH on 8/15/11.

Neither low level vials for sample LC34-DPT0334-053.0-20110803 (CAS #R1104376-017) contained water in the vials. The VOC sample was prepared using % Solids aliquot jar 5 grams sample/5 ml DI on 8/16/11.

Initial and Continuing Calibration Criteria was met for all samples except the following 8260 compounds:
1,2-Dichloroethane %Differences (%D) was out at 21.7% (criteria is ±20%) on the 8/1211 CCV,
Vinyl Chloride (23.0%) was outside limits on the 8/13/11 CCV,
MEK (-24.3%) was out on the 8/15/11 run,
1,2-Dichloroethane (21.0%), Chloromethane (34.2%), and Vinyl Chloride (54.2%) were out on the 8/16/11 run,
and Trichloroethene (21.6%) was out on the 8/26/11 run.

When CCV %D criteria are not met, it may indicate some bias in the quantitation for that target compound in the associated samples. Any hits for these compounds in these specific runs should be considered as estimated.

All sample surrogate recoveries were within acceptance limits.

The Internal Standards (IS) were low for sample location LC34-DPT0332-053.0-20110803 (CAS# R1104376-005). The sample was repeated and the IS results were confirmed. Matrix Interference is suspected. The IS were also low for sample LC34-DPT0333-053.0-20110803 (R1104376-011). The second vial for this location had sample encrusted in the cap and therefore a poor seal resulting in a bad purge. Data was not used from the second run attempt.

Site QC was performed on locations LC34-DTP0333-044.0-20110803 and LC34-DPT0333-045.5-20110803 (CAS # R1104376-007 and R1104376-008 respectively). The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within acceptance limits for all compounds except for n-Butanol (MS only) on the (-008) sample which was the result of carry over. All Laboratory Control Samples (LCS) and LCS Duplicate (LCSD) recoveries were all within QC limits except for the following:
1,2-Dichloroethane (LCS/LCSD), MEK (LCSD), Carbon Disulfide (LCSD), Chloromethane (LCS/LCSD), and Vinyl Chloride (LCS/LCSD) on the 8/16/11 analytical run.

Approved by Karen Burdick **Date** 9/7/11

All Relative Percent Difference (RPD) calculations were acceptable except for n-Butanol. All exceedences have been flagged as "*".
The laboratory attributed the LCS/LCSD recovery exceedences to problems with the Helium pressure. The affected sample locations LC34-DPT0333-048.5-20110803 (CAS# R1104376-010), LC34-DPT0334-045.5-20110803 (CAS# R1104376-014), and LC34-DPT0334-053.0-20110803 (CAS #R1104376-017) were initially run low level within holding time under this QC. The low level samples were repeated outside of holding time which mostly confirmed the initial results. Locations -010 and -014 were repeated as Medium levels using the % Solids aliquots. The Medium level analysis did not confirm the low level run hits for cis-1,2-dichloroethene and Trichloroethene for these locations however. Only the initial runs have been reported for these samples with "E" flagged results due to the estimation for over-range hits. The results for these compounds for all runs are noted in the table below for your review:

	Run 1 low level (Run QC out)	Run 2 low level (out of HT)	Medium Level (from TS aliquot)
-010 cis, 1,2-DCE	558 ppb "E"	567 ppb "E"	31 ppb
TCE	4322 ppb "E"	4342 ppb "E"	210 ppb
-014 cis 1,2-DCE	3423 ppb "E"	2678 ppb "E"	27 ppb
TCE	4903 ppb "E"	8772 ppb "E"	362 ppb

Site QC was done on location LC34-DPT0334-053.0-20110803 (R1104376-017) for % Solids and is included in the report.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Several samples had hits above the calibration range of the standards. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project. Carry over was noted in the initial run for locations LC34-DPT0332-048.0-20110803 (CAS #R1104376-004) and LC34-DPT0334-047.0-20110803 (CAS # R1104376-015) for N-Butanol. The samples were reanalyzed outside of holding time and the results from the reanalysis were reported for this compound only. The reanalysis results are flagged as "*".

Samples were analyzed within the proper holding time for soils except as noted above.

The Laboratory Method Blanks were free from contamination except for Acetone in the 8/12/11 run, Acetone, Dichloromethane and Toluene on the 8/13/11 run, MEK on the 8/14/11 and medium level runs and MEK, and Acetone, Toluene and n-Butyl Acetate on the 8/16/11 low level run . Affected sample hits are flagged as "B".

No other analytical or QC problems were encountered during the analysis of these samples.

Approved by Karen J Burke **Date** 9/7/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1104376

Lab ID	Client ID
R1104376-001	LC34-DPT0332-037.0-20110803
R1104376-002	LC34-DPT0332-043.5-20110803
R1104376-003	LC34-DPT0332-045.0-20110803
R1104376-004	LC34-DPT0332-048.0-20110803
R1104376-005	LC34-DPT0332-053.0-20110803
R1104376-006	LC34-DPT0333-037.0-20110803
R1104376-007	LC34-DPT0333-044.0-20110803
R1104376-008	LC34-DPT0333-045.5-20110803
R1104376-009	LC34-DPT0333-047.0-20110803
R1104376-010	LC34-DPT0333-048.5-20110803
R1104376-011	LC34-DPT0333-053.0-20110803
R1104376-012	LC34-DPT0334-034.5-20110803
R1104376-013	LC34-DPT0334-037.0-20110803
R1104376-014	LC34-DPT0334-045.5-20110803
R1104376-015	LC34-DPT0334-047.0-20110803
R1104376-016	LC34-DPT0334-048.5-20110803
R1104376-017	LC34-DPT0334-053.0-20110803

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 0903
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-037.0-20110803		
Lab Code:	R1104376-001	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**75.3**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0903
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-037.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-001	**Basis:**	Dry
		Percent Solids:	75.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	620	U	620	45	94	NA	8/14/11 16:02		257368	
1,1,2,2-Tetrachloroethane	620	U	620	25	94	NA	8/14/11 16:02		257368	
1,1,2-Trichloroethane	620	U	620	29	94	NA	8/14/11 16:02		257368	
1,1-Dichloroethane (1,1-DCA)	620	U	620	25	94	NA	8/14/11 16:02		257368	
1,1-Dichloroethene (1,1-DCE)	620	U	620	25	94	NA	8/14/11 16:02		257368	
1,2-Dichloroethane	620	U	620	25	94	NA	8/14/11 16:02		257368	
1,2-Dichloropropane	620	U	620	32	94	NA	8/14/11 16:02		257368	
n-Butanol	**100000**		31000	2000	94	NA	8/14/11 16:02		257368	
2-Butanone (MEK)	620	U	620	83	94	NA	8/14/11 16:02		257368	
2-Hexanone	620	U	620	32	94	NA	8/14/11 16:02		257368	
4-Methyl-2-pentanone	620	U	620	29	94	NA	8/14/11 16:02		257368	
Acetone	620	U	620	140	94	NA	8/14/11 16:02		257368	
Benzene	620	U	620	25	94	NA	8/14/11 16:02		257368	
Bromodichloromethane	620	U	620	25	94	NA	8/14/11 16:02		257368	
Bromoform	620	U	620	30	94	NA	8/14/11 16:02		257368	
Bromomethane	620	U	620	52	94	NA	8/14/11 16:02		257368	
Carbon Disulfide	620	U	620	120	94	NA	8/14/11 16:02		257368	
Carbon Tetrachloride	620	U	620	33	94	NA	8/14/11 16:02		257368	
Chlorobenzene	620	U	620	25	94	NA	8/14/11 16:02		257368	
Chloroethane	620	U	620	48	94	NA	8/14/11 16:02		257368	
Chloroform	620	U	620	25	94	NA	8/14/11 16:02		257368	
Chloromethane	620	U	620	58	94	NA	8/14/11 16:02		257368	
Dibromochloromethane	620	U	620	25	94	NA	8/14/11 16:02		257368	
Dichloromethane	620	U	620	34	94	NA	8/14/11 16:02		257368	
Ethylbenzene	620	U	620	25	94	NA	8/14/11 16:02		257368	
Styrene	620	U	620	25	94	NA	8/14/11 16:02		257368	
Tetrachloroethene (PCE)	620	U	620	25	94	NA	8/14/11 16:02		257368	
Toluene	620	U	620	25	94	NA	8/14/11 16:02		257368	
Trichloroethene (TCE)	**15000**		620	25	94	NA	8/14/11 16:02		257368	
Vinyl Chloride	**160**	J	620	35	94	NA	8/14/11 16:02		257368	
cis-1,2-Dichloroethene	**6800**		620	98	94	NA	8/14/11 16:02		257368	
cis-1,3-Dichloropropene	620	U	620	25	94	NA	8/14/11 16:02		257368	
m,p-Xylenes	1200	U	1200	84	94	NA	8/14/11 16:02		257368	
n-Butyl Acetate	**8300**		620	25	94	NA	8/14/11 16:02		257368	
o-Xylene	620	U	620	25	94	NA	8/14/11 16:02		257368	
trans-1,2-Dichloroethene	**55**	J	620	29	94	NA	8/14/11 16:02		257368	
trans-1,3-Dichloropropene	620	U	620	25	94	NA	8/14/11 16:02		257368	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0903
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-037.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-001	**Basis:**	Dry
		Percent Solids:	75.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	8/14/11 16:02	
Dibromofluoromethane	107	89-116	8/14/11 16:02	
Toluene-d8	107	87-121	8/14/11 16:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 0921
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-043.5-20110803		
Lab Code:	R1104376-002	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.8**		Percent	1.0	1	NA	8/10/11 15:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0921
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-043.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-002	**Basis:**	Dry
		Percent Solids:	73.8

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2200	U	2200	160	327	NA	8/14/11 20:57		257368	
1,1,2,2-Tetrachloroethane	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
1,1,2-Trichloroethane	2200	U	2200	110	327	NA	8/14/11 20:57		257368	
1,1-Dichloroethane (1,1-DCA)	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
1,1-Dichloroethene (1,1-DCE)	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
1,2-Dichloroethane	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
1,2-Dichloropropane	2200	U	2200	120	327	NA	8/14/11 20:57		257368	
n-Butanol	**36000**	J	110000	6900	327	NA	8/14/11 20:57		257368	
2-Butanone (MEK)	**960**	BJ	2200	300	327	NA	8/14/11 20:57		257368	
2-Hexanone	2200	U	2200	120	327	NA	8/14/11 20:57		257368	
4-Methyl-2-pentanone	2200	U	2200	110	327	NA	8/14/11 20:57		257368	
Acetone	2200	U	2200	500	327	NA	8/14/11 20:57		257368	
Benzene	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Bromodichloromethane	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Bromoform	2200	U	2200	110	327	NA	8/14/11 20:57		257368	
Bromomethane	2200	U	2200	190	327	NA	8/14/11 20:57		257368	
Carbon Disulfide	2200	U	2200	400	327	NA	8/14/11 20:57		257368	
Carbon Tetrachloride	2200	U	2200	120	327	NA	8/14/11 20:57		257368	
Chlorobenzene	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Chloroethane	2200	U	2200	170	327	NA	8/14/11 20:57		257368	
Chloroform	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Chloromethane	2200	U	2200	210	327	NA	8/14/11 20:57		257368	
Dibromochloromethane	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Dichloromethane	2200	U	2200	120	327	NA	8/14/11 20:57		257368	
Ethylbenzene	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Styrene	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Tetrachloroethene (PCE)	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
Toluene	**310**	J	2200	89	327	NA	8/14/11 20:57		257368	
Trichloroethene (TCE)	**70000**		2200	89	327	NA	8/14/11 20:57		257368	
Vinyl Chloride	2200	U	2200	130	327	NA	8/14/11 20:57		257368	
cis-1,2-Dichloroethene	**4500**		2200	350	327	NA	8/14/11 20:57		257368	
cis-1,3-Dichloropropene	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
m,p-Xylenes	4400	U	4400	300	327	NA	8/14/11 20:57		257368	
n-Butyl Acetate	**38000**		2200	89	327	NA	8/14/11 20:57		257368	
o-Xylene	2200	U	2200	89	327	NA	8/14/11 20:57		257368	
trans-1,2-Dichloroethene	2200	U	2200	110	327	NA	8/14/11 20:57		257368	
trans-1,3-Dichloropropene	2200	U	2200	89	327	NA	8/14/11 20:57		257368	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0921
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-043.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-002	**Basis:**	Dry
		Percent Solids:	73.8

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	8/14/11 20:57	
Dibromofluoromethane	107	89-116	8/14/11 20:57	
Toluene-d8	107	87-121	8/14/11 20:57	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 0947
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-045.0-20110803		
Lab Code:	R1104376-003	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	67.7		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0947
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-045.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-003	**Basis:**	Dry
		Percent Solids:	67.7

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	860	U	860	62	116	NA	8/15/11 14:55		257554	
1,1,2,2-Tetrachloroethane	860	U	860	35	116	NA	8/15/11 14:55		257554	
1,1,2-Trichloroethane	860	U	860	40	116	NA	8/15/11 14:55		257554	
1,1-Dichloroethane (1,1-DCA)	860	U	860	35	116	NA	8/15/11 14:55		257554	
1,1-Dichloroethene (1,1-DCE)	860	U	860	35	116	NA	8/15/11 14:55		257554	
1,2-Dichloroethane	860	U	860	35	116	NA	8/15/11 14:55		257554	
1,2-Dichloropropane	860	U	860	43	116	NA	8/15/11 14:55		257554	
n-Butanol	**9600**	J	43000	2700	116	NA	8/15/11 14:55		257554	
2-Butanone (MEK)	**310**	BJ	860	120	116	NA	8/15/11 14:55		257554	
2-Hexanone	860	U	860	43	116	NA	8/15/11 14:55		257554	
4-Methyl-2-pentanone	860	U	860	40	116	NA	8/15/11 14:55		257554	
Acetone	860	U	860	200	116	NA	8/15/11 14:55		257554	
Benzene	860	U	860	35	116	NA	8/15/11 14:55		257554	
Bromodichloromethane	860	U	860	35	116	NA	8/15/11 14:55		257554	
Bromoform	860	U	860	42	116	NA	8/15/11 14:55		257554	
Bromomethane	860	U	860	71	116	NA	8/15/11 14:55		257554	
Carbon Disulfide	860	U	860	160	116	NA	8/15/11 14:55		257554	
Carbon Tetrachloride	860	U	860	45	116	NA	8/15/11 14:55		257554	
Chlorobenzene	860	U	860	35	116	NA	8/15/11 14:55		257554	
Chloroethane	860	U	860	66	116	NA	8/15/11 14:55		257554	
Chloroform	**72**	J	860	35	116	NA	8/15/11 14:55		257554	
Chloromethane	860	U	860	79	116	NA	8/15/11 14:55		257554	
Dibromochloromethane	860	U	860	35	116	NA	8/15/11 14:55		257554	
Dichloromethane	860	U	860	47	116	NA	8/15/11 14:55		257554	
Ethylbenzene	860	U	860	35	116	NA	8/15/11 14:55		257554	
Styrene	860	U	860	35	116	NA	8/15/11 14:55		257554	
Tetrachloroethene (PCE)	860	U	860	35	116	NA	8/15/11 14:55		257554	
Toluene	860	U	860	35	116	NA	8/15/11 14:55		257554	
Trichloroethene (TCE)	**3400**		860	35	116	NA	8/15/11 14:55		257554	
Vinyl Chloride	860	U	860	48	116	NA	8/15/11 14:55		257554	
cis-1,2-Dichloroethene	**1800**		860	140	116	NA	8/15/11 14:55		257554	
cis-1,3-Dichloropropene	860	U	860	35	116	NA	8/15/11 14:55		257554	
m,p-Xylenes	1700	U	1700	120	116	NA	8/15/11 14:55		257554	
n-Butyl Acetate	**7700**		860	35	116	NA	8/15/11 14:55		257554	
o-Xylene	860	U	860	35	116	NA	8/15/11 14:55		257554	
trans-1,2-Dichloroethene	860	U	860	40	116	NA	8/15/11 14:55		257554	
trans-1,3-Dichloropropene	860	U	860	35	116	NA	8/15/11 14:55		257554	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0947
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-045.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-003	**Basis:**	Dry
		Percent Solids:	67.7

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	8/15/11 14:55	
Dibromofluoromethane	106	89-116	8/15/11 14:55	
Toluene-d8	108	87-121	8/15/11 14:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 0956
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-048.0-20110803		
Lab Code:	R1104376-004	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.4**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0956
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-048.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-004	**Basis:**	Dry
		Percent Solids:	73.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	800	U	800	58	118	NA	8/14/11 16:39		257368	
1,1,2,2-Tetrachloroethane	800	U	800	33	118	NA	8/14/11 16:39		257368	
1,1,2-Trichloroethane	800	U	800	37	118	NA	8/14/11 16:39		257368	
1,1-Dichloroethane (1,1-DCA)	800	U	800	33	118	NA	8/14/11 16:39		257368	
1,1-Dichloroethene (1,1-DCE)	800	U	800	33	118	NA	8/14/11 16:39		257368	
1,2-Dichloroethane	800	U	800	33	118	NA	8/14/11 16:39		257368	
1,2-Dichloropropane	800	U	800	41	118	NA	8/14/11 16:39		257368	
n-Butanol	40000	U	40000	2500	118	NA	8/27/11 07:18		259340	*
2-Butanone (MEK)	**210**	BJ	800	110	118	NA	8/14/11 16:39		257368	
2-Hexanone	800	U	800	41	118	NA	8/14/11 16:39		257368	
4-Methyl-2-pentanone	800	U	800	37	118	NA	8/14/11 16:39		257368	
Acetone	**270**	J	800	190	118	NA	8/14/11 16:39		257368	
Benzene	800	U	800	33	118	NA	8/14/11 16:39		257368	
Bromodichloromethane	800	U	800	33	118	NA	8/14/11 16:39		257368	
Bromoform	800	U	800	39	118	NA	8/14/11 16:39		257368	
Bromomethane	800	U	800	66	118	NA	8/14/11 16:39		257368	
Carbon Disulfide	800	U	800	150	118	NA	8/14/11 16:39		257368	
Carbon Tetrachloride	800	U	800	42	118	NA	8/14/11 16:39		257368	
Chlorobenzene	800	U	800	33	118	NA	8/14/11 16:39		257368	
Chloroethane	800	U	800	62	118	NA	8/14/11 16:39		257368	
Chloroform	800	U	800	33	118	NA	8/14/11 16:39		257368	
Chloromethane	800	U	800	74	118	NA	8/14/11 16:39		257368	
Dibromochloromethane	800	U	800	33	118	NA	8/14/11 16:39		257368	
Dichloromethane	800	U	800	44	118	NA	8/14/11 16:39		257368	
Ethylbenzene	800	U	800	33	118	NA	8/14/11 16:39		257368	
Styrene	800	U	800	33	118	NA	8/14/11 16:39		257368	
Tetrachloroethene (PCE)	800	U	800	33	118	NA	8/14/11 16:39		257368	
Toluene	**61**	J	800	33	118	NA	8/14/11 16:39		257368	
Trichloroethene (TCE)	**1800**		800	33	118	NA	8/14/11 16:39		257368	
Vinyl Chloride	800	U	800	46	118	NA	8/14/11 16:39		257368	
cis-1,2-Dichloroethene	**1500**		800	130	118	NA	8/14/11 16:39		257368	
cis-1,3-Dichloropropene	800	U	800	33	118	NA	8/14/11 16:39		257368	
m,p-Xylenes	1600	U	1600	110	118	NA	8/14/11 16:39		257368	
n-Butyl Acetate	**1100**		800	33	118	NA	8/14/11 16:39		257368	
o-Xylene	800	U	800	33	118	NA	8/14/11 16:39		257368	
trans-1,2-Dichloroethene	800	U	800	37	118	NA	8/14/11 16:39		257368	
trans-1,3-Dichloropropene	800	U	800	33	118	NA	8/14/11 16:39		257368	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 0956
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-048.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-004	**Basis:**	Dry
		Percent Solids:	73.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	8/14/11 16:39	
Dibromofluoromethane	109	89-116	8/14/11 16:39	
Toluene-d8	104	87-121	8/14/11 16:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1013
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-053.0-20110803		
Lab Code:	R1104376-005	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.4**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1013
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-053.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-005	**Basis:**	Dry
		Percent Solids:	72.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.5	U	5.5	0.26	.79	NA	8/12/11 18:49		257243	
1,1,2,2-Tetrachloroethane	5.5	U	5.5	0.39	.79	NA	8/12/11 18:49		257243	
1,1,2-Trichloroethane	5.5	U	5.5	0.31	.79	NA	8/12/11 18:49		257243	
1,1-Dichloroethane (1,1-DCA)	5.5	U	5.5	0.30	.79	NA	8/12/11 18:49		257243	
1,1-Dichloroethene (1,1-DCE)	5.5	U	5.5	0.42	.79	NA	8/12/11 18:49		257243	
1,2-Dichloroethane	5.5	U	5.5	0.33	.79	NA	8/12/11 18:49		257243	
1,2-Dichloropropane	5.5	U	5.5	0.40	.79	NA	8/12/11 18:49		257243	
n-Butanol	270	U	270	13	.79	NA	8/12/11 18:49		257243	
2-Butanone (MEK)	5.5	U	5.5	1.1	.79	NA	8/12/11 18:49		257243	
2-Hexanone	5.5	U	5.5	0.52	.79	NA	8/12/11 18:49		257243	
4-Methyl-2-pentanone	5.5	U	5.5	0.46	.79	NA	8/12/11 18:49		257243	
Acetone	**31**		5.5	1.3	.79	NA	8/12/11 18:49		257243	
Benzene	5.5	U	5.5	0.27	.79	NA	8/12/11 18:49		257243	
Bromodichloromethane	5.5	U	5.5	0.31	.79	NA	8/12/11 18:49		257243	
Bromoform	5.5	U	5.5	0.27	.79	NA	8/12/11 18:49		257243	
Bromomethane	5.5	U	5.5	0.38	.79	NA	8/12/11 18:49		257243	
Carbon Disulfide	**14**		5.5	0.31	.79	NA	8/12/11 18:49		257243	
Carbon Tetrachloride	5.5	U	5.5	0.22	.79	NA	8/12/11 18:49		257243	
Chlorobenzene	5.5	U	5.5	0.35	.79	NA	8/12/11 18:49		257243	
Chloroethane	5.5	U	5.5	0.47	.79	NA	8/12/11 18:49		257243	
Chloroform	5.5	U	5.5	0.59	.79	NA	8/12/11 18:49		257243	
Chloromethane	5.5	U	5.5	0.49	.79	NA	8/12/11 18:49		257243	
Dibromochloromethane	5.5	U	5.5	0.40	.79	NA	8/12/11 18:49		257243	
Dichloromethane	5.5	U	5.5	0.25	.79	NA	8/12/11 18:49		257243	
Ethylbenzene	5.5	U	5.5	0.47	.79	NA	8/12/11 18:49		257243	
Styrene	5.5	U	5.5	0.34	.79	NA	8/12/11 18:49		257243	
Tetrachloroethene (PCE)	5.5	U	5.5	0.63	.79	NA	8/12/11 18:49		257243	
Toluene	**2.8**	J	5.5	0.34	.79	NA	8/12/11 18:49		257243	
Trichloroethene (TCE)	**9.8**		5.5	0.56	.79	NA	8/12/11 18:49		257243	
Vinyl Chloride	5.5	U	5.5	0.52	.79	NA	8/12/11 18:49		257243	
cis-1,2-Dichloroethene	**4.2**	J	5.5	0.41	.79	NA	8/12/11 18:49		257243	
cis-1,3-Dichloropropene	5.5	U	5.5	0.39	.79	NA	8/12/11 18:49		257243	
m,p-Xylenes	11	U	11	0.76	.79	NA	8/12/11 18:49		257243	
n-Butyl Acetate	**4.7**	J	5.5	0.30	.79	NA	8/12/11 18:49		257243	
o-Xylene	5.5	U	5.5	0.35	.79	NA	8/12/11 18:49		257243	
trans-1,2-Dichloroethene	5.5	U	5.5	0.42	.79	NA	8/12/11 18:49		257243	
trans-1,3-Dichloropropene	5.5	U	5.5	0.22	.79	NA	8/12/11 18:49		257243	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1013
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0332-053.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-005	**Basis:**	Dry
		Percent Solids:	72.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	77-128	8/12/11 18:49	
Dibromofluoromethane	126	65-136	8/12/11 18:49	
Toluene-d8	106	75-126	8/12/11 18:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1114
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-037.0-20110803		
Lab Code:	R1104376-006	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**78.1**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1114
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-037.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-006	**Basis:**	Dry
		Percent Solids:	78.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	96	208	NA	8/14/11 21:34		257368	
1,1,2,2-Tetrachloroethane	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
1,1,2-Trichloroethane	1300	U	1300	62	208	NA	8/14/11 21:34		257368	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
1,2-Dichloroethane	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
1,2-Dichloropropane	1300	U	1300	67	208	NA	8/14/11 21:34		257368	
n-Butanol	**33000**	J	67000	4200	208	NA	8/14/11 21:34		257368	
2-Butanone (MEK)	1300	U	1300	180	208	NA	8/14/11 21:34		257368	
2-Hexanone	1300	U	1300	67	208	NA	8/14/11 21:34		257368	
4-Methyl-2-pentanone	1300	U	1300	62	208	NA	8/14/11 21:34		257368	
Acetone	1300	U	1300	300	208	NA	8/14/11 21:34		257368	
Benzene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Bromodichloromethane	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Bromoform	1300	U	1300	64	208	NA	8/14/11 21:34		257368	
Bromomethane	1300	U	1300	110	208	NA	8/14/11 21:34		257368	
Carbon Disulfide	1300	U	1300	240	208	NA	8/14/11 21:34		257368	
Carbon Tetrachloride	1300	U	1300	70	208	NA	8/14/11 21:34		257368	
Chlorobenzene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Chloroethane	1300	U	1300	110	208	NA	8/14/11 21:34		257368	
Chloroform	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Chloromethane	1300	U	1300	130	208	NA	8/14/11 21:34		257368	
Dibromochloromethane	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Dichloromethane	1300	U	1300	72	208	NA	8/14/11 21:34		257368	
Ethylbenzene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Styrene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Tetrachloroethene (PCE)	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Toluene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
Trichloroethene (TCE)	**46000**		1300	54	208	NA	8/14/11 21:34		257368	
Vinyl Chloride	1300	U	1300	75	208	NA	8/14/11 21:34		257368	
cis-1,2-Dichloroethene	**6500**		1300	210	208	NA	8/14/11 21:34		257368	
cis-1,3-Dichloropropene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
m,p-Xylenes	2700	U	2700	180	208	NA	8/14/11 21:34		257368	
n-Butyl Acetate	**24000**		1300	54	208	NA	8/14/11 21:34		257368	
o-Xylene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	
trans-1,2-Dichloroethene	**83**	J	1300	62	208	NA	8/14/11 21:34		257368	
trans-1,3-Dichloropropene	1300	U	1300	54	208	NA	8/14/11 21:34		257368	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1114
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-037.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-006	**Basis:**	Dry
		Percent Solids:	78.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	8/14/11 21:34	
Dibromofluoromethane	108	89-116	8/14/11 21:34	
Toluene-d8	108	87-121	8/14/11 21:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1128
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-044.0-20110803		
Lab Code:	R1104376-007	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**71.2**		Percent	1.0	1	NA	8/10/11 15:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1128
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-044.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-007	**Basis:**	Dry
		Percent Solids:	71.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	3100	U	3100	150	436	NA	8/14/11 22:11		257368	
1,1,2,2-Tetrachloroethane	3100	U	3100	220	436	NA	8/14/11 22:11		257368	
1,1,2-Trichloroethane	3100	U	3100	180	436	NA	8/14/11 22:11		257368	
1,1-Dichloroethane (1,1-DCA)	3100	U	3100	170	436	NA	8/14/11 22:11		257368	
1,1-Dichloroethene (1,1-DCE)	3100	U	3100	240	436	NA	8/14/11 22:11		257368	
1,2-Dichloroethane	3100	U	3100	190	436	NA	8/14/11 22:11		257368	
1,2-Dichloropropane	3100	U	3100	230	436	NA	8/14/11 22:11		257368	
n-Butanol	150000	U	150000	7200	436	NA	8/14/11 22:11		257368	
2-Butanone (MEK)	3100	U	3100	600	436	NA	8/14/11 22:11		257368	
2-Hexanone	3100	U	3100	290	436	NA	8/14/11 22:11		257368	
4-Methyl-2-pentanone	3100	U	3100	260	436	NA	8/14/11 22:11		257368	
Acetone	**4300**		3100	680	436	NA	8/14/11 22:11		257368	
Benzene	3100	U	3100	150	436	NA	8/14/11 22:11		257368	
Bromodichloromethane	3100	U	3100	180	436	NA	8/14/11 22:11		257368	
Bromoform	3100	U	3100	150	436	NA	8/14/11 22:11		257368	
Bromomethane	3100	U	3100	210	436	NA	8/14/11 22:11		257368	
Carbon Disulfide	3100	U	3100	180	436	NA	8/14/11 22:11		257368	
Carbon Tetrachloride	3100	U	3100	130	436	NA	8/14/11 22:11		257368	
Chlorobenzene	3100	U	3100	200	436	NA	8/14/11 22:11		257368	
Chloroethane	3100	U	3100	270	436	NA	8/14/11 22:11		257368	
Chloroform	3100	U	3100	340	436	NA	8/14/11 22:11		257368	
Chloromethane	3100	U	3100	270	436	NA	8/14/11 22:11		257368	
Dibromochloromethane	3100	U	3100	230	436	NA	8/14/11 22:11		257368	
Dichloromethane	3100	U	3100	140	436	NA	8/14/11 22:11		257368	
Ethylbenzene	3100	U	3100	270	436	NA	8/14/11 22:11		257368	
Styrene	3100	U	3100	190	436	NA	8/14/11 22:11		257368	
Tetrachloroethene (PCE)	3100	U	3100	350	436	NA	8/14/11 22:11		257368	
Toluene	3100	U	3100	190	436	NA	8/14/11 22:11		257368	
Trichloroethene (TCE)	**65000**		3100	320	436	NA	8/14/11 22:11		257368	
Vinyl Chloride	3100	U	3100	290	436	NA	8/14/11 22:11		257368	
cis-1,2-Dichloroethene	**1100**	J	3100	230	436	NA	8/14/11 22:11		257368	
cis-1,3-Dichloropropene	3100	U	3100	220	436	NA	8/14/11 22:11		257368	
m,p-Xylenes	6100	U	6100	430	436	NA	8/14/11 22:11		257368	
n-Butyl Acetate	**6400**		3100	170	436	NA	8/14/11 22:11		257368	
o-Xylene	3100	U	3100	200	436	NA	8/14/11 22:11		257368	
trans-1,2-Dichloroethene	3100	U	3100	240	436	NA	8/14/11 22:11		257368	
trans-1,3-Dichloropropene	3100	U	3100	130	436	NA	8/14/11 22:11		257368	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1128
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-044.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-007	**Basis:**	Dry
		Percent Solids:	71.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	77-128	8/14/11 22:11	
Dibromofluoromethane	104	65-136	8/14/11 22:11	
Toluene-d8	108	75-126	8/14/11 22:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1150
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-045.5-20110803		
Lab Code:	R1104376-008	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**70.6**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1150
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-045.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-008	**Basis:**	Dry
		Percent Solids:	70.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1100	U	1100	80	156	NA	8/15/11 17:04		257554	
1,1,2,2-Tetrachloroethane	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
1,1,2-Trichloroethane	1100	U	1100	51	156	NA	8/15/11 17:04		257554	
1,1-Dichloroethane (1,1-DCA)	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
1,1-Dichloroethene (1,1-DCE)	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
1,2-Dichloroethane	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
1,2-Dichloropropane	1100	U	1100	56	156	NA	8/15/11 17:04		257554	
n-Butanol	**11000**	J	55000	3500	156	NA	8/15/11 17:04		257554	
2-Butanone (MEK)	1100	U	1100	150	156	NA	8/15/11 17:04		257554	
2-Hexanone	1100	U	1100	56	156	NA	8/15/11 17:04		257554	
4-Methyl-2-pentanone	1100	U	1100	51	156	NA	8/15/11 17:04		257554	
Acetone	1100	U	1100	250	156	NA	8/15/11 17:04		257554	
Benzene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Bromodichloromethane	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Bromoform	1100	U	1100	54	156	NA	8/15/11 17:04		257554	
Bromomethane	1100	U	1100	91	156	NA	8/15/11 17:04		257554	
Carbon Disulfide	1100	U	1100	200	156	NA	8/15/11 17:04		257554	
Carbon Tetrachloride	1100	U	1100	58	156	NA	8/15/11 17:04		257554	
Chlorobenzene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Chloroethane	1100	U	1100	84	156	NA	8/15/11 17:04		257554	
Chloroform	**60**	J	1100	45	156	NA	8/15/11 17:04		257554	
Chloromethane	1100	U	1100	110	156	NA	8/15/11 17:04		257554	
Dibromochloromethane	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Dichloromethane	1100	U	1100	60	156	NA	8/15/11 17:04		257554	
Ethylbenzene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Styrene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Tetrachloroethene (PCE)	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Toluene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
Trichloroethene (TCE)	**64000**	D	2200	89	312	NA	8/15/11 18:18		257554	
Vinyl Chloride	1100	U	1100	62	156	NA	8/15/11 17:04		257554	
cis-1,2-Dichloroethene	**3300**		1100	180	156	NA	8/15/11 17:04		257554	
cis-1,3-Dichloropropene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
m,p-Xylenes	2200	U	2200	150	156	NA	8/15/11 17:04		257554	
n-Butyl Acetate	**4900**		1100	45	156	NA	8/15/11 17:04		257554	
o-Xylene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	
trans-1,2-Dichloroethene	**64**	J	1100	51	156	NA	8/15/11 17:04		257554	
trans-1,3-Dichloropropene	1100	U	1100	45	156	NA	8/15/11 17:04		257554	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1150
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-045.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-008	**Basis:**	Dry
		Percent Solids:	70.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	8/15/11 17:04	
Dibromofluoromethane	103	89-116	8/15/11 17:04	
Toluene-d8	108	87-121	8/15/11 17:04	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1155
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-047.0-20110803		
Lab Code:	R1104376-009	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**70.3**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1155
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-047.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-009	**Basis:**	Dry
		Percent Solids:	70.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	76	147	NA	8/14/11 17:15		257368	
1,1,2,2-Tetrachloroethane	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
1,1,2-Trichloroethane	1000	U	1000	49	147	NA	8/14/11 17:15		257368	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
1,2-Dichloroethane	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
1,2-Dichloropropane	1000	U	1000	53	147	NA	8/14/11 17:15		257368	
n-Butanol	**16000**	J	52000	3300	147	NA	8/14/11 17:15		257368	
2-Butanone (MEK)	**360**	BJ	1000	140	147	NA	8/14/11 17:15		257368	
2-Hexanone	1000	U	1000	53	147	NA	8/14/11 17:15		257368	
4-Methyl-2-pentanone	1000	U	1000	49	147	NA	8/14/11 17:15		257368	
Acetone	1000	U	1000	240	147	NA	8/14/11 17:15		257368	
Benzene	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Bromodichloromethane	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Bromoform	1000	U	1000	51	147	NA	8/14/11 17:15		257368	
Bromomethane	1000	U	1000	86	147	NA	8/14/11 17:15		257368	
Carbon Disulfide	1000	U	1000	190	147	NA	8/14/11 17:15		257368	
Carbon Tetrachloride	1000	U	1000	55	147	NA	8/14/11 17:15		257368	
Chlorobenzene	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Chloroethane	1000	U	1000	80	147	NA	8/14/11 17:15		257368	
Chloroform	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Chloromethane	1000	U	1000	97	147	NA	8/14/11 17:15		257368	
Dibromochloromethane	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Dichloromethane	1000	U	1000	57	147	NA	8/14/11 17:15		257368	
Ethylbenzene	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Styrene	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Tetrachloroethene (PCE)	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
Toluene	**73**	J	1000	42	147	NA	8/14/11 17:15		257368	
Trichloroethene (TCE)	**37000**		1000	42	147	NA	8/14/11 17:15		257368	
Vinyl Chloride	1000	U	1000	59	147	NA	8/14/11 17:15		257368	
cis-1,2-Dichloroethene	**2000**		1000	170	147	NA	8/14/11 17:15		257368	
cis-1,3-Dichloropropene	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
m,p-Xylenes	2100	U	2100	150	147	NA	8/14/11 17:15		257368	
n-Butyl Acetate	**290**	J	1000	42	147	NA	8/14/11 17:15		257368	
o-Xylene	1000	U	1000	42	147	NA	8/14/11 17:15		257368	
trans-1,2-Dichloroethene	1000	U	1000	49	147	NA	8/14/11 17:15		257368	
trans-1,3-Dichloropropene	1000	U	1000	42	147	NA	8/14/11 17:15		257368	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1155
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-047.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-009	**Basis:**	Dry
		Percent Solids:	70.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/14/11 17:15	
Dibromofluoromethane	104	89-116	8/14/11 17:15	
Toluene-d8	109	87-121	8/14/11 17:15	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1157
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-048.5-20110803		
Lab Code:	R1104376-010	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**66.5**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1157
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-048.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-010	**Basis:**	Dry
		Percent Solids:	66.5

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	6.5	U	6.5	0.48	.87	NA	8/16/11 20:13		257758	
1,1,2,2-Tetrachloroethane	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
1,1,2-Trichloroethane	6.5	U	6.5	0.31	.87	NA	8/16/11 20:13		257758	
1,1-Dichloroethane (1,1-DCA)	**0.82**	J	6.5	0.27	.87	NA	8/16/11 20:13		257758	
1,1-Dichloroethene (1,1-DCE)	**2.0**	J	6.5	0.27	.87	NA	8/16/11 20:13		257758	
1,2-Dichloroethane	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
1,2-Dichloropropane	6.5	U	6.5	0.33	.87	NA	8/16/11 20:13		257758	
n-Butanol	**14000**	E	330	21	.87	NA	8/16/11 20:13		257758	
2-Butanone (MEK)	6.5	U	6.5	0.87	.87	NA	8/16/11 20:13		257758	
2-Hexanone	**0.43**	J	6.5	0.33	.87	NA	8/16/11 20:13		257758	
4-Methyl-2-pentanone	6.5	U	6.5	0.31	.87	NA	8/16/11 20:13		257758	
Acetone	**48**		6.5	1.5	.87	NA	8/16/11 20:13		257758	
Benzene	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Bromodichloromethane	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Bromoform	6.5	U	6.5	0.32	.87	NA	8/16/11 20:13		257758	
Bromomethane	6.5	U	6.5	0.54	.87	NA	8/16/11 20:13		257758	
Carbon Disulfide	**21**		6.5	1.2	.87	NA	8/16/11 20:13		257758	
Carbon Tetrachloride	6.5	U	6.5	0.35	.87	NA	8/16/11 20:13		257758	
Chlorobenzene	**0.27**	J	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Chloroethane	6.5	U	6.5	0.50	.87	NA	8/16/11 20:13		257758	
Chloroform	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Chloromethane	6.5	U	6.5	0.61	.87	NA	8/16/11 20:13		257758	
Dibromochloromethane	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Dichloromethane	6.5	U	6.5	0.36	.87	NA	8/16/11 20:13		257758	
Ethylbenzene	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Styrene	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Tetrachloroethene (PCE)	**1.1**	J	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Toluene	**2.9**	J	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Trichloroethene (TCE)	**5700**	E	6.5	0.27	.87	NA	8/16/11 20:13		257758	
Vinyl Chloride	**1.5**	J	6.5	0.37	.87	NA	8/16/11 20:13		257758	
cis-1,2-Dichloroethene	**730**	E	6.5	1.1	.87	NA	8/16/11 20:13		257758	
cis-1,3-Dichloropropene	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
m,p-Xylenes	13	U	13	0.88	.87	NA	8/16/11 20:13		257758	
n-Butyl Acetate	**160**		6.5	0.27	.87	NA	8/16/11 20:13		257758	
o-Xylene	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	
trans-1,2-Dichloroethene	**4.2**	J	6.5	0.31	.87	NA	8/16/11 20:13		257758	
trans-1,3-Dichloropropene	6.5	U	6.5	0.27	.87	NA	8/16/11 20:13		257758	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1157
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-048.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-010	**Basis:**	Dry
		Percent Solids:	66.5

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	8/16/11 20:13	
Dibromofluoromethane	112	89-116	8/16/11 20:13	
Toluene-d8	105	87-121	8/16/11 20:13	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1227
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-053.0-20110803		
Lab Code:	R1104376-011	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**71.3**		Percent	1.0	1	NA	8/10/11 15:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1227
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-053.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-011	**Basis:**	Dry
		Percent Solids:	71.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.7	U	5.7	0.27	.81	NA	8/13/11 18:58		257352	
1,1,2,2-Tetrachloroethane	5.7	U	5.7	0.40	.81	NA	8/13/11 18:58		257352	
1,1,2-Trichloroethane	5.7	U	5.7	0.32	.81	NA	8/13/11 18:58		257352	
1,1-Dichloroethane (1,1-DCA)	5.7	U	5.7	0.31	.81	NA	8/13/11 18:58		257352	
1,1-Dichloroethene (1,1-DCE)	5.7	U	5.7	0.44	.81	NA	8/13/11 18:58		257352	
1,2-Dichloroethane	5.7	U	5.7	0.35	.81	NA	8/13/11 18:58		257352	
1,2-Dichloropropane	5.7	U	5.7	0.41	.81	NA	8/13/11 18:58		257352	
n-Butanol	280	U	280	14	.81	NA	8/13/11 18:58		257352	
2-Butanone (MEK)	**6.1**		5.7	1.2	.81	NA	8/13/11 18:58		257352	
2-Hexanone	5.7	U	5.7	0.54	.81	NA	8/13/11 18:58		257352	
4-Methyl-2-pentanone	5.7	U	5.7	0.48	.81	NA	8/13/11 18:58		257352	
Acetone	**28**		5.7	1.3	.81	NA	8/13/11 18:58		257352	
Benzene	5.7	U	5.7	0.28	.81	NA	8/13/11 18:58		257352	
Bromodichloromethane	5.7	U	5.7	0.32	.81	NA	8/13/11 18:58		257352	
Bromoform	5.7	U	5.7	0.28	.81	NA	8/13/11 18:58		257352	
Bromomethane	5.7	U	5.7	0.39	.81	NA	8/13/11 18:58		257352	
Carbon Disulfide	**16**		5.7	0.32	.81	NA	8/13/11 18:58		257352	
Carbon Tetrachloride	5.7	U	5.7	0.23	.81	NA	8/13/11 18:58		257352	
Chlorobenzene	5.7	U	5.7	0.37	.81	NA	8/13/11 18:58		257352	
Chloroethane	5.7	U	5.7	0.49	.81	NA	8/13/11 18:58		257352	
Chloroform	5.7	U	5.7	0.62	.81	NA	8/13/11 18:58		257352	
Chloromethane	5.7	U	5.7	0.50	.81	NA	8/13/11 18:58		257352	
Dibromochloromethane	5.7	U	5.7	0.41	.81	NA	8/13/11 18:58		257352	
Dichloromethane	5.7	U	5.7	0.25	.81	NA	8/13/11 18:58		257352	
Ethylbenzene	5.7	U	5.7	0.49	.81	NA	8/13/11 18:58		257352	
Styrene	5.7	U	5.7	0.36	.81	NA	8/13/11 18:58		257352	
Tetrachloroethene (PCE)	5.7	U	5.7	0.65	.81	NA	8/13/11 18:58		257352	
Toluene	**0.93**	BJ	5.7	0.36	.81	NA	8/13/11 18:58		257352	
Trichloroethene (TCE)	**9.5**		5.7	0.58	.81	NA	8/13/11 18:58		257352	
Vinyl Chloride	5.7	U	5.7	0.54	.81	NA	8/13/11 18:58		257352	
cis-1,2-Dichloroethene	**2.0**	J	5.7	0.43	.81	NA	8/13/11 18:58		257352	
cis-1,3-Dichloropropene	5.7	U	5.7	0.40	.81	NA	8/13/11 18:58		257352	
m,p-Xylenes	11	U	11	0.79	.81	NA	8/13/11 18:58		257352	
n-Butyl Acetate	**0.87**	J	5.7	0.31	.81	NA	8/13/11 18:58		257352	
o-Xylene	5.7	U	5.7	0.37	.81	NA	8/13/11 18:58		257352	
trans-1,2-Dichloroethene	5.7	U	5.7	0.44	.81	NA	8/13/11 18:58		257352	
trans-1,3-Dichloropropene	5.7	U	5.7	0.23	.81	NA	8/13/11 18:58		257352	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1227
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0333-053.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-011	**Basis:**	Dry
		Percent Solids:	71.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	77-128	8/13/11 18:58	
Dibromofluoromethane	115	65-136	8/13/11 18:58	
Toluene-d8	107	75-126	8/13/11 18:58	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1404
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-034.5-20110803		
Lab Code:	R1104376-012	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**80.4**		Percent	1.0	1	NA	8/19/11 10:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1404
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-034.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-012	**Basis:**	Dry
		Percent Solids:	80.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	580	U	580	42	93.5	NA	8/14/11 17:52		257368	
1,1,2,2-Tetrachloroethane	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
1,1,2-Trichloroethane	580	U	580	27	93.5	NA	8/14/11 17:52		257368	
1,1-Dichloroethane (1,1-DCA)	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
1,1-Dichloroethene (1,1-DCE)	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
1,2-Dichloroethane	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
1,2-Dichloropropane	580	U	580	30	93.5	NA	8/14/11 17:52		257368	
n-Butanol	**3700**	J	29000	180093	.5	NA	8/14/11 17:52		257368	
2-Butanone (MEK)	580	U	580	77	93.5	NA	8/14/11 17:52		257368	
2-Hexanone	580	U	580	30	93.5	NA	8/14/11 17:52		257368	
4-Methyl-2-pentanone	580	U	580	27	93.5	NA	8/14/11 17:52		257368	
Acetone	580	U	580	140	93.5	NA	8/14/11 17:52		257368	
Benzene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Bromodichloromethane	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Bromoform	580	U	580	28	93.5	NA	8/14/11 17:52		257368	
Bromomethane	580	U	580	48	93.5	NA	8/14/11 17:52		257368	
Carbon Disulfide	580	U	580	110	93.5	NA	8/14/11 17:52		257368	
Carbon Tetrachloride	580	U	580	31	93.5	NA	8/14/11 17:52		257368	
Chlorobenzene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Chloroethane	580	U	580	45	93.5	NA	8/14/11 17:52		257368	
Chloroform	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Chloromethane	580	U	580	54	93.5	NA	8/14/11 17:52		257368	
Dibromochloromethane	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Dichloromethane	580	U	580	32	93.5	NA	8/14/11 17:52		257368	
Ethylbenzene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Styrene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Tetrachloroethene (PCE)	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Toluene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
Trichloroethene (TCE)	**4800**		580	24	93.5	NA	8/14/11 17:52		257368	
Vinyl Chloride	580	U	580	33	93.5	NA	8/14/11 17:52		257368	
cis-1,2-Dichloroethene	**2700**		580	91	93.5	NA	8/14/11 17:52		257368	
cis-1,3-Dichloropropene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
m,p-Xylenes	1200	U	1200	78	93.5	NA	8/14/11 17:52		257368	
n-Butyl Acetate	**490**	J	580	24	93.5	NA	8/14/11 17:52		257368	
o-Xylene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	
trans-1,2-Dichloroethene	**50**	J	580	27	93.5	NA	8/14/11 17:52		257368	
trans-1,3-Dichloropropene	580	U	580	24	93.5	NA	8/14/11 17:52		257368	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1404
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-034.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-012	**Basis:**	Dry
		Percent Solids:	80.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	8/14/11 17:52	
Dibromofluoromethane	107	89-116	8/14/11 17:52	
Toluene-d8	109	87-121	8/14/11 17:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1413
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-037.0-20110803		
Lab Code:	R1104376-013	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**74.2**		Percent	1.0	1	NA	8/19/11 10:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1413
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-037.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-013	**Basis:**	Dry
		Percent Solids:	74.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	680	U	680	50	101.5	NA	8/14/11 18:29		257368	
1,1,2,2-Tetrachloroethane	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
1,1,2-Trichloroethane	680	U	680	32	101.5	NA	8/14/11 18:29		257368	
1,1-Dichloroethane (1,1-DCA)	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
1,1-Dichloroethene (1,1-DCE)	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
1,2-Dichloroethane	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
1,2-Dichloropropane	680	U	680	35	101.5	NA	8/14/11 18:29		257368	
n-Butanol	**64000**		34000	2200	101.5	NA	8/14/11 18:29		257368	
2-Butanone (MEK)	**220**	BJ	680	91	101.5	NA	8/14/11 18:29		257368	
2-Hexanone	680	U	680	35	101.5	NA	8/14/11 18:29		257368	
4-Methyl-2-pentanone	680	U	680	32	101.5	NA	8/14/11 18:29		257368	
Acetone	680	U	680	160	101.5	NA	8/14/11 18:29		257368	
Benzene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Bromodichloromethane	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Bromoform	680	U	680	33	101.5	NA	8/14/11 18:29		257368	
Bromomethane	680	U	680	57	101.5	NA	8/14/11 18:29		257368	
Carbon Disulfide	680	U	680	130	101.5	NA	8/14/11 18:29		257368	
Carbon Tetrachloride	680	U	680	36	101.5	NA	8/14/11 18:29		257368	
Chlorobenzene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Chloroethane	680	U	680	52	101.5	NA	8/14/11 18:29		257368	
Chloroform	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Chloromethane	680	U	680	63	101.5	NA	8/14/11 18:29		257368	
Dibromochloromethane	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Dichloromethane	680	U	680	37	101.5	NA	8/14/11 18:29		257368	
Ethylbenzene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Styrene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Tetrachloroethene (PCE)	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Toluene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
Trichloroethene (TCE)	**6800**		680	28	101.5	NA	8/14/11 18:29		257368	
Vinyl Chloride	**300**	J	680	39	101.5	NA	8/14/11 18:29		257368	
cis-1,2-Dichloroethene	**7100**		680	110	101.5	NA	8/14/11 18:29		257368	
cis-1,3-Dichloropropene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
m,p-Xylenes	1400	U	1400	92	101.5	NA	8/14/11 18:29		257368	
n-Butyl Acetate	**57**	J	680	28	101.5	NA	8/14/11 18:29		257368	
o-Xylene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	
trans-1,2-Dichloroethene	**42**	J	680	32	101.5	NA	8/14/11 18:29		257368	
trans-1,3-Dichloropropene	680	U	680	28	101.5	NA	8/14/11 18:29		257368	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1413
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-037.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-013	**Basis:**	Dry
		Percent Solids:	74.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	8/14/11 18:29	
Dibromofluoromethane	105	89-116	8/14/11 18:29	
Toluene-d8	107	87-121	8/14/11 18:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1457
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-045.5-20110803		
Lab Code:	R1104376-014	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**70.3**		Percent	1.0	1	NA	8/19/11 10:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1457
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-045.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-014	**Basis:**	Dry
		Percent Solids:	70.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.8	U	5.8	0.42	.82	NA	8/16/11 21:26		257758	
1,1,2,2-Tetrachloroethane	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
1,1,2-Trichloroethane	5.8	U	5.8	0.27	.82	NA	8/16/11 21:26		257758	
1,1-Dichloroethane (1,1-DCA)	**5.2**	J	5.8	0.24	.82	NA	8/16/11 21:26		257758	
1,1-Dichloroethene (1,1-DCE)	**9.8**		5.8	0.24	.82	NA	8/16/11 21:26		257758	
1,2-Dichloroethane	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
1,2-Dichloropropane	5.8	U	5.8	0.30	.82	NA	8/16/11 21:26		257758	
n-Butanol	**5700**		290	18	.82	NA	8/16/11 21:26		257758	
2-Butanone (MEK)	5.8	U	5.8	0.77	.82	NA	8/16/11 21:26		257758	
2-Hexanone	5.8	U	5.8	0.30	.82	NA	8/16/11 21:26		257758	
4-Methyl-2-pentanone	5.8	U	5.8	0.27	.82	NA	8/16/11 21:26		257758	
Acetone	**34**	B	5.8	1.4	.82	NA	8/16/11 21:26		257758	
Benzene	**0.29**	J	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Bromodichloromethane	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Bromoform	5.8	U	5.8	0.28	.82	NA	8/16/11 21:26		257758	
Bromomethane	5.8	U	5.8	0.48	.82	NA	8/16/11 21:26		257758	
Carbon Disulfide	**97**		5.8	1.1	.82	NA	8/16/11 21:26		257758	
Carbon Tetrachloride	5.8	U	5.8	0.31	.82	NA	8/16/11 21:26		257758	
Chlorobenzene	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Chloroethane	5.8	U	5.8	0.45	.82	NA	8/16/11 21:26		257758	
Chloroform	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Chloromethane	5.8	U	5.8	0.54	.82	NA	8/16/11 21:26		257758	
Dibromochloromethane	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Dichloromethane	5.8	U	5.8	0.32	.82	NA	8/16/11 21:26		257758	
Ethylbenzene	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Styrene	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Tetrachloroethene (PCE)	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Toluene	**1.2**	BJ	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Trichloroethene (TCE)	**5700**	E	5.8	0.24	.82	NA	8/16/11 21:26		257758	
Vinyl Chloride	**2.8**	J	5.8	0.33	.82	NA	8/16/11 21:26		257758	
cis-1,2-Dichloroethene	**4000**	E	5.8	0.91	.82	NA	8/16/11 21:26		257758	
cis-1,3-Dichloropropene	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
m,p-Xylenes	12	U	12	0.79	.82	NA	8/16/11 21:26		257758	
n-Butyl Acetate	**1700**	E	5.8	0.24	.82	NA	8/16/11 21:26		257758	
o-Xylene	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	
trans-1,2-Dichloroethene	**78**		5.8	0.27	.82	NA	8/16/11 21:26		257758	
trans-1,3-Dichloropropene	5.8	U	5.8	0.24	.82	NA	8/16/11 21:26		257758	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1457
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-045.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-014	**Basis:**	Dry
		Percent Solids:	70.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	112	85-122	8/16/11 21:26	
Dibromofluoromethane	111	89-116	8/16/11 21:26	
Toluene-d8	111	87-121	8/16/11 21:26	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1507
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-047.0-20110803		
Lab Code:	R1104376-015	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.6**		Percent	1.0	1	NA	8/19/11 10:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1507
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-047.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-015	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1200	U	1200	84	168.5	NA	8/14/11 19:06		257368	
1,1,2,2-Tetrachloroethane	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
1,1,2-Trichloroethane	1200	U	1200	54	168.5	NA	8/14/11 19:06		257368	
1,1-Dichloroethane (1,1-DCA)	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
1,1-Dichloroethene (1,1-DCE)	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
1,2-Dichloroethane	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
1,2-Dichloropropane	1200	U	1200	59	168.5	NA	8/14/11 19:06		257368	
n-Butanol	58000	U	58000	3600	168.5	NA	8/27/11 06:48		259340	*
2-Butanone (MEK)	**210**	BJ	1200	160	168.5	NA	8/14/11 19:06		257368	
2-Hexanone	1200	U	1200	59	168.5	NA	8/14/11 19:06		257368	
4-Methyl-2-pentanone	1200	U	1200	54	168.5	NA	8/14/11 19:06		257368	
Acetone	**290**	J	1200	260	168.5	NA	8/14/11 19:06		257368	
Benzene	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Bromodichloromethane	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Bromoform	1200	U	1200	56	168.5	NA	8/14/11 19:06		257368	
Bromomethane	1200	U	1200	96	168.5	NA	8/14/11 19:06		257368	
Carbon Disulfide	1200	U	1200	210	168.5	NA	8/14/11 19:06		257368	
Carbon Tetrachloride	1200	U	1200	61	168.5	NA	8/14/11 19:06		257368	
Chlorobenzene	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Chloroethane	1200	U	1200	89	168.5	NA	8/14/11 19:06		257368	
Chloroform	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Chloromethane	1200	U	1200	110	168.5	NA	8/14/11 19:06		257368	
Dibromochloromethane	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Dichloromethane	1200	U	1200	63	168.5	NA	8/14/11 19:06		257368	
Ethylbenzene	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Styrene	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Tetrachloroethene (PCE)	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
Toluene	**79**	J	1200	47	168.5	NA	8/14/11 19:06		257368	
Trichloroethene (TCE)	**31000**		1200	47	168.5	NA	8/14/11 19:06		257368	
Vinyl Chloride	1200	U	1200	65	168.5	NA	8/14/11 19:06		257368	
cis-1,2-Dichloroethene	**5700**		1200	190	168.5	NA	8/14/11 19:06		257368	
cis-1,3-Dichloropropene	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
m,p-Xylenes	2300	U	2300	160	168.5	NA	8/14/11 19:06		257368	
n-Butyl Acetate	**56**	J	1200	47	168.5	NA	8/14/11 19:06		257368	
o-Xylene	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	
trans-1,2-Dichloroethene	**93**	J	1200	54	168.5	NA	8/14/11 19:06		257368	
trans-1,3-Dichloropropene	1200	U	1200	47	168.5	NA	8/14/11 19:06		257368	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1507
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-047.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-015	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/14/11 19:06	
Dibromofluoromethane	110	89-116	8/14/11 19:06	
Toluene-d8	107	87-121	8/14/11 19:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1513
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-048.5-20110803		
Lab Code:	R1104376-016	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.2**		Percent	1.0	1	NA	8/19/11 10:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1513
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-048.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-016	**Basis:**	Dry
		Percent Solids:	73.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	730	U	730	53	106.5	NA	8/14/11 19:43		257368	
1,1,2,2-Tetrachloroethane	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
1,1,2-Trichloroethane	730	U	730	34	106.5	NA	8/14/11 19:43		257368	
1,1-Dichloroethane (1,1-DCA)	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
1,1-Dichloroethene (1,1-DCE)	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
1,2-Dichloroethane	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
1,2-Dichloropropane	730	U	730	37	106.5	NA	8/14/11 19:43		257368	
n-Butanol	36000	U	36000	2300	106.5	NA	8/14/11 19:43		257368	
2-Butanone (MEK)	730	U	730	97	106.5	NA	8/14/11 19:43		257368	
2-Hexanone	730	U	730	37	106.5	NA	8/14/11 19:43		257368	
4-Methyl-2-pentanone	730	U	730	34	106.5	NA	8/14/11 19:43		257368	
Acetone	730	U	730	170	106.5	NA	8/14/11 19:43		257368	
Benzene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Bromodichloromethane	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Bromoform	730	U	730	35	106.5	NA	8/14/11 19:43		257368	
Bromomethane	730	U	730	60	106.5	NA	8/14/11 19:43		257368	
Carbon Disulfide	730	U	730	140	106.5	NA	8/14/11 19:43		257368	
Carbon Tetrachloride	730	U	730	38	106.5	NA	8/14/11 19:43		257368	
Chlorobenzene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Chloroethane	730	U	730	56	106.5	NA	8/14/11 19:43		257368	
Chloroform	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Chloromethane	730	U	730	67	106.5	NA	8/14/11 19:43		257368	
Dibromochloromethane	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Dichloromethane	730	U	730	40	106.5	NA	8/14/11 19:43		257368	
Ethylbenzene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Styrene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Tetrachloroethene (PCE)	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Toluene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
Trichloroethene (TCE)	**5300**		730	30	106.5	NA	8/14/11 19:43		257368	
Vinyl Chloride	730	U	730	41	106.5	NA	8/14/11 19:43		257368	
cis-1,2-Dichloroethene	**1400**		730	120	106.5	NA	8/14/11 19:43		257368	
cis-1,3-Dichloropropene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
m,p-Xylenes	1500	U	1500	98	106.5	NA	8/14/11 19:43		257368	
n-Butyl Acetate	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
o-Xylene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	
trans-1,2-Dichloroethene	730	U	730	34	106.5	NA	8/14/11 19:43		257368	
trans-1,3-Dichloropropene	730	U	730	30	106.5	NA	8/14/11 19:43		257368	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1513
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-048.5-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-016	**Basis:**	Dry
		Percent Solids:	73.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/14/11 19:43	
Dibromofluoromethane	105	89-116	8/14/11 19:43	
Toluene-d8	110	87-121	8/14/11 19:43	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	8/ 3/11 1532
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-053.0-20110803		
Lab Code:	R1104376-017	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.2**		Percent	1.0	1	NA	8/19/11 10:10	

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Sample Name: LC34-DPT0334-053.0-20110803
Lab Code: R1104376-017

Service Request: R1104376
Date Collected: 8/ 3/11 1532
Date Received: 8/ 5/11

Units: µg/Kg
Basis: Dry
Percent Solids: 73.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	6.8	U	6.8	0.50	1	NA	8/16/11 19:00		257758	
1,1,2,2-Tetrachloroethane	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
1,1,2-Trichloroethane	6.8	U	6.8	0.32	1	NA	8/16/11 19:00		257758	
1,1-Dichloroethane (1,1-DCA)	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
1,1-Dichloroethene (1,1-DCE)	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
1,2-Dichloroethane	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
1,2-Dichloropropane	6.8	U	6.8	0.35	1	NA	8/16/11 19:00		257758	
n-Butanol	**400**		340	22	1	NA	8/16/11 19:00		257758	
2-Butanone (MEK)	**42**		6.8	0.91	1	NA	8/16/11 19:00		257758	
2-Hexanone	6.8	U	6.8	0.35	1	NA	8/16/11 19:00		257758	
4-Methyl-2-pentanone	6.8	U	6.8	0.32	1	NA	8/16/11 19:00		257758	
Acetone	**28**	B	6.8	1.6	1	NA	8/16/11 19:00		257758	
Benzene	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Bromodichloromethane	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Bromoform	6.8	U	6.8	0.33	1	NA	8/16/11 19:00		257758	
Bromomethane	6.8	U	6.8	0.57	1	NA	8/16/11 19:00		257758	
Carbon Disulfide	**5.5**	J	6.8	1.3	1	NA	8/16/11 19:00		257758	
Carbon Tetrachloride	6.8	U	6.8	0.36	1	NA	8/16/11 19:00		257758	
Chlorobenzene	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Chloroethane	6.8	U	6.8	0.52	1	NA	8/16/11 19:00		257758	
Chloroform	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Chloromethane	6.8	U	6.8	0.63	1	NA	8/16/11 19:00		257758	
Dibromochloromethane	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Dichloromethane	**1.1**	J	6.8	0.37	1	NA	8/16/11 19:00		257758	
Ethylbenzene	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Styrene	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Tetrachloroethene (PCE)	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
Toluene	**0.57**	BJ	6.8	0.28	1	NA	8/16/11 19:00		257758	
Trichloroethene (TCE)	**6.0**	J	6.8	0.28	1	NA	8/16/11 19:00		257758	
Vinyl Chloride	6.8	U	6.8	0.39	1	NA	8/16/11 19:00		257758	
cis-1,2-Dichloroethene	**3.0**	J	6.8	1.1	1	NA	8/16/11 19:00		257758	
cis-1,3-Dichloropropene	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
m,p-Xylenes	14	U	14	0.92	1	NA	8/16/11 19:00		257758	
n-Butyl Acetate	**7000**	D	600	24	87.5	NA	8/14/11 20:20		257368	
o-Xylene	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	
trans-1,2-Dichloroethene	6.8	U	6.8	0.32	1	NA	8/16/11 19:00		257758	
trans-1,3-Dichloropropene	6.8	U	6.8	0.28	1	NA	8/16/11 19:00		257758	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	8/ 3/11 1532
Sample Matrix:	Soil	**Date Received:**	8/ 5/11
Sample Name:	LC34-DPT0334-053.0-20110803	**Units:**	µg/Kg
Lab Code:	R1104376-017	**Basis:**	Dry
		Percent Solids:	73.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	8/16/11 19:00	
Dibromofluoromethane	110	89-116	8/16/11 19:00	
Toluene-d8	110	87-121	8/16/11 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104376-MB1	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	8/10/11 15:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104376-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	8/19/11 10:10	

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ1107824-04

Units: µg/Kg
Basis: Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/12/11 14:27		257243	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.35	1	NA	8/12/11 14:27		257243	
1,1,2-Trichloroethane	5.0	U	5.0	0.28	1	NA	8/12/11 14:27		257243	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.27	1	NA	8/12/11 14:27		257243	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.38	1	NA	8/12/11 14:27		257243	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	8/12/11 14:27		257243	
1,2-Dichloropropane	5.0	U	5.0	0.36	1	NA	8/12/11 14:27		257243	
n-Butanol	250	U	250	12	1	NA	8/12/11 14:27		257243	
2-Butanone (MEK)	5.0	U	5.0	0.97	1	NA	8/12/11 14:27		257243	
2-Hexanone	5.0	U	5.0	0.47	1	NA	8/12/11 14:27		257243	
4-Methyl-2-pentanone	5.0	U	5.0	0.42	1	NA	8/12/11 14:27		257243	
Acetone	**2.5**	J	5.0	1.1	1	NA	8/12/11 14:27		257243	
Benzene	5.0	U	5.0	0.24	1	NA	8/12/11 14:27		257243	
Bromodichloromethane	5.0	U	5.0	0.28	1	NA	8/12/11 14:27		257243	
Bromoform	5.0	U	5.0	0.24	1	NA	8/12/11 14:27		257243	
Bromomethane	5.0	U	5.0	0.34	1	NA	8/12/11 14:27		257243	
Carbon Disulfide	5.0	U	5.0	0.28	1	NA	8/12/11 14:27		257243	
Carbon Tetrachloride	5.0	U	5.0	0.20	1	NA	8/12/11 14:27		257243	
Chlorobenzene	5.0	U	5.0	0.32	1	NA	8/12/11 14:27		257243	
Chloroethane	5.0	U	5.0	0.43	1	NA	8/12/11 14:27		257243	
Chloroform	5.0	U	5.0	0.54	1	NA	8/12/11 14:27		257243	
Chloromethane	5.0	U	5.0	0.44	1	NA	8/12/11 14:27		257243	
Dibromochloromethane	5.0	U	5.0	0.36	1	NA	8/12/11 14:27		257243	
Dichloromethane	5.0	U	5.0	0.22	1	NA	8/12/11 14:27		257243	
Ethylbenzene	5.0	U	5.0	0.43	1	NA	8/12/11 14:27		257243	
Styrene	5.0	U	5.0	0.31	1	NA	8/12/11 14:27		257243	
Tetrachloroethene (PCE)	5.0	U	5.0	0.57	1	NA	8/12/11 14:27		257243	
Toluene	5.0	U	5.0	0.31	1	NA	8/12/11 14:27		257243	
Trichloroethene (TCE)	5.0	U	5.0	0.51	1	NA	8/12/11 14:27		257243	
Vinyl Chloride	5.0	U	5.0	0.47	1	NA	8/12/11 14:27		257243	
cis-1,2-Dichloroethene	5.0	U	5.0	0.37	1	NA	8/12/11 14:27		257243	
cis-1,3-Dichloropropene	5.0	U	5.0	0.35	1	NA	8/12/11 14:27		257243	
m,p-Xylenes	10	U	10	0.69	1	NA	8/12/11 14:27		257243	
n-Butyl Acetate	5.0	U	5.0	0.27	1	NA	8/12/11 14:27		257243	
o-Xylene	5.0	U	5.0	0.32	1	NA	8/12/11 14:27		257243	
trans-1,2-Dichloroethene	5.0	U	5.0	0.38	1	NA	8/12/11 14:27		257243	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/12/11 14:27		257243	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107824-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	77-128	8/12/11 14:27	
Dibromofluoromethane	121	65-136	8/12/11 14:27	
Toluene-d8	106	75-126	8/12/11 14:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107841-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	8/13/11 17:44		257352	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.35	1	NA	8/13/11 17:44		257352	
1,1,2-Trichloroethane	5.0	U	5.0	0.28	1	NA	8/13/11 17:44		257352	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.27	1	NA	8/13/11 17:44		257352	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.38	1	NA	8/13/11 17:44		257352	
1,2-Dichloroethane	5.0	U	5.0	0.30	1	NA	8/13/11 17:44		257352	
1,2-Dichloropropane	5.0	U	5.0	0.36	1	NA	8/13/11 17:44		257352	
n-Butanol	250	U	250	12	1	NA	8/13/11 17:44		257352	
2-Butanone (MEK)	5.0	U	5.0	0.97	1	NA	8/13/11 17:44		257352	
2-Hexanone	5.0	U	5.0	0.47	1	NA	8/13/11 17:44		257352	
4-Methyl-2-pentanone	5.0	U	5.0	0.42	1	NA	8/13/11 17:44		257352	
Acetone	**1.7**	J	5.0	1.1	1	NA	8/13/11 17:44		257352	
Benzene	5.0	U	5.0	0.24	1	NA	8/13/11 17:44		257352	
Bromodichloromethane	5.0	U	5.0	0.28	1	NA	8/13/11 17:44		257352	
Bromoform	5.0	U	5.0	0.24	1	NA	8/13/11 17:44		257352	
Bromomethane	5.0	U	5.0	0.34	1	NA	8/13/11 17:44		257352	
Carbon Disulfide	5.0	U	5.0	0.28	1	NA	8/13/11 17:44		257352	
Carbon Tetrachloride	5.0	U	5.0	0.20	1	NA	8/13/11 17:44		257352	
Chlorobenzene	5.0	U	5.0	0.32	1	NA	8/13/11 17:44		257352	
Chloroethane	5.0	U	5.0	0.43	1	NA	8/13/11 17:44		257352	
Chloroform	5.0	U	5.0	0.54	1	NA	8/13/11 17:44		257352	
Chloromethane	5.0	U	5.0	0.44	1	NA	8/13/11 17:44		257352	
Dibromochloromethane	5.0	U	5.0	0.36	1	NA	8/13/11 17:44		257352	
Dichloromethane	**0.47**	J	5.0	0.22	1	NA	8/13/11 17:44		257352	
Ethylbenzene	5.0	U	5.0	0.43	1	NA	8/13/11 17:44		257352	
Styrene	5.0	U	5.0	0.31	1	NA	8/13/11 17:44		257352	
Tetrachloroethene (PCE)	5.0	U	5.0	0.57	1	NA	8/13/11 17:44		257352	
Toluene	**1.1**	J	5.0	0.31	1	NA	8/13/11 17:44		257352	
Trichloroethene (TCE)	5.0	U	5.0	0.51	1	NA	8/13/11 17:44		257352	
Vinyl Chloride	5.0	U	5.0	0.47	1	NA	8/13/11 17:44		257352	
cis-1,2-Dichloroethene	5.0	U	5.0	0.37	1	NA	8/13/11 17:44		257352	
cis-1,3-Dichloropropene	5.0	U	5.0	0.35	1	NA	8/13/11 17:44		257352	
m,p-Xylenes	10	U	10	0.69	1	NA	8/13/11 17:44		257352	
n-Butyl Acetate	5.0	U	5.0	0.27	1	NA	8/13/11 17:44		257352	
o-Xylene	5.0	U	5.0	0.32	1	NA	8/13/11 17:44		257352	
trans-1,2-Dichloroethene	5.0	U	5.0	0.38	1	NA	8/13/11 17:44		257352	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/13/11 17:44		257352	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107841-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	77-128	8/13/11 17:44	
Dibromofluoromethane	123	65-136	8/13/11 17:44	
Toluene-d8	103	75-126	8/13/11 17:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107853-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	18	50	NA	8/14/11 15:25		257368	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	8/14/11 15:25		257368	
1,1,2-Trichloroethane	250	U	250	12	50	NA	8/14/11 15:25		257368	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	8/14/11 15:25		257368	
1,1-Dichloroethene (1,1-DCE)	250	U	250	10	50	NA	8/14/11 15:25		257368	
1,2-Dichloroethane	250	U	250	10	50	NA	8/14/11 15:25		257368	
1,2-Dichloropropane	250	U	250	13	50	NA	8/14/11 15:25		257368	
n-Butanol	13000	U	13000	780	50	NA	8/14/11 15:25		257368	
2-Butanone (MEK)	66	J	250	33	50	NA	8/14/11 15:25		257368	
2-Hexanone	250	U	250	13	50	NA	8/14/11 15:25		257368	
4-Methyl-2-pentanone	250	U	250	12	50	NA	8/14/11 15:25		257368	
Acetone	250	U	250	57	50	NA	8/14/11 15:25		257368	
Benzene	250	U	250	10	50	NA	8/14/11 15:25		257368	
Bromodichloromethane	250	U	250	10	50	NA	8/14/11 15:25		257368	
Bromoform	250	U	250	12	50	NA	8/14/11 15:25		257368	
Bromomethane	250	U	250	21	50	NA	8/14/11 15:25		257368	
Carbon Disulfide	250	U	250	45	50	NA	8/14/11 15:25		257368	
Carbon Tetrachloride	250	U	250	13	50	NA	8/14/11 15:25		257368	
Chlorobenzene	250	U	250	10	50	NA	8/14/11 15:25		257368	
Chloroethane	250	U	250	19	50	NA	8/14/11 15:25		257368	
Chloroform	250	U	250	10	50	NA	8/14/11 15:25		257368	
Chloromethane	250	U	250	23	50	NA	8/14/11 15:25		257368	
Dibromochloromethane	250	U	250	10	50	NA	8/14/11 15:25		257368	
Dichloromethane	250	U	250	14	50	NA	8/14/11 15:25		257368	
Ethylbenzene	250	U	250	10	50	NA	8/14/11 15:25		257368	
Styrene	250	U	250	10	50	NA	8/14/11 15:25		257368	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	8/14/11 15:25		257368	
Toluene	250	U	250	10	50	NA	8/14/11 15:25		257368	
Trichloroethene (TCE)	250	U	250	10	50	NA	8/14/11 15:25		257368	
Vinyl Chloride	250	U	250	15	50	NA	8/14/11 15:25		257368	
cis-1,2-Dichloroethene	250	U	250	39	50	NA	8/14/11 15:25		257368	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	8/14/11 15:25		257368	
m,p-Xylenes	500	U	500	34	50	NA	8/14/11 15:25		257368	
n-Butyl Acetate	250	U	250	10	50	NA	8/14/11 15:25		257368	
o-Xylene	250	U	250	10	50	NA	8/14/11 15:25		257368	
trans-1,2-Dichloroethene	250	U	250	12	50	NA	8/14/11 15:25		257368	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	8/14/11 15:25		257368	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107853-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	8/14/11 15:25	
Dibromofluoromethane	103	89-116	8/14/11 15:25	
Toluene-d8	111	87-121	8/14/11 15:25	

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ1107906-04

Units: µg/Kg
Basis: Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	18	50	NA	8/15/11 14:12		257554	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	8/15/11 14:12		257554	
1,1,2-Trichloroethane	250	U	250	12	50	NA	8/15/11 14:12		257554	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	8/15/11 14:12		257554	
1,1-Dichloroethene (1,1-DCE)	250	U	250	10	50	NA	8/15/11 14:12		257554	
1,2-Dichloroethane	250	U	250	10	50	NA	8/15/11 14:12		257554	
1,2-Dichloropropane	250	U	250	13	50	NA	8/15/11 14:12		257554	
n-Butanol	13000	U	13000	780	50	NA	8/15/11 14:12		257554	
2-Butanone (MEK)	**86**	J	250	33	50	NA	8/15/11 14:12		257554	
2-Hexanone	250	U	250	13	50	NA	8/15/11 14:12		257554	
4-Methyl-2-pentanone	250	U	250	12	50	NA	8/15/11 14:12		257554	
Acetone	250	U	250	57	50	NA	8/15/11 14:12		257554	
Benzene	250	U	250	10	50	NA	8/15/11 14:12		257554	
Bromodichloromethane	250	U	250	10	50	NA	8/15/11 14:12		257554	
Bromoform	250	U	250	12	50	NA	8/15/11 14:12		257554	
Bromomethane	250	U	250	21	50	NA	8/15/11 14:12		257554	
Carbon Disulfide	250	U	250	45	50	NA	8/15/11 14:12		257554	
Carbon Tetrachloride	250	U	250	13	50	NA	8/15/11 14:12		257554	
Chlorobenzene	250	U	250	10	50	NA	8/15/11 14:12		257554	
Chloroethane	250	U	250	19	50	NA	8/15/11 14:12		257554	
Chloroform	250	U	250	10	50	NA	8/15/11 14:12		257554	
Chloromethane	250	U	250	23	50	NA	8/15/11 14:12		257554	
Dibromochloromethane	250	U	250	10	50	NA	8/15/11 14:12		257554	
Dichloromethane	250	U	250	14	50	NA	8/15/11 14:12		257554	
Ethylbenzene	250	U	250	10	50	NA	8/15/11 14:12		257554	
Styrene	250	U	250	10	50	NA	8/15/11 14:12		257554	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	8/15/11 14:12		257554	
Toluene	250	U	250	10	50	NA	8/15/11 14:12		257554	
Trichloroethene (TCE)	250	U	250	10	50	NA	8/15/11 14:12		257554	
Vinyl Chloride	250	U	250	15	50	NA	8/15/11 14:12		257554	
cis-1,2-Dichloroethene	250	U	250	39	50	NA	8/15/11 14:12		257554	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	8/15/11 14:12		257554	
m,p-Xylenes	500	U	500	34	50	NA	8/15/11 14:12		257554	
n-Butyl Acetate	250	U	250	10	50	NA	8/15/11 14:12		257554	
o-Xylene	250	U	250	10	50	NA	8/15/11 14:12		257554	
trans-1,2-Dichloroethene	250	U	250	12	50	NA	8/15/11 14:12		257554	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	8/15/11 14:12		257554	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107906-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/15/11 14:12	
Dibromofluoromethane	104	89-116	8/15/11 14:12	
Toluene-d8	109	87-121	8/15/11 14:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107985-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	1	NA	8/16/11 17:48		257758	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	8/16/11 17:48		257758	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
1,2-Dichloropropane	5.0	U	5.0	0.25	1	NA	8/16/11 17:48		257758	
n-Butanol	250	U	250	16	1	NA	8/16/11 17:48		257758	
2-Butanone (MEK)	**1.5**	J	5.0	0.66	1	NA	8/16/11 17:48		257758	
2-Hexanone	5.0	U	5.0	0.25	1	NA	8/16/11 17:48		257758	
4-Methyl-2-pentanone	5.0	U	5.0	0.23	1	NA	8/16/11 17:48		257758	
Acetone	**4.0**	J	5.0	1.2	1	NA	8/16/11 17:48		257758	
Benzene	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Bromoform	5.0	U	5.0	0.24	1	NA	8/16/11 17:48		257758	
Bromomethane	5.0	U	5.0	0.41	1	NA	8/16/11 17:48		257758	
Carbon Disulfide	5.0	U	5.0	0.90	1	NA	8/16/11 17:48		257758	
Carbon Tetrachloride	5.0	U	5.0	0.26	1	NA	8/16/11 17:48		257758	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Chloroethane	5.0	U	5.0	0.38	1	NA	8/16/11 17:48		257758	
Chloroform	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Chloromethane	5.0	U	5.0	0.46	1	NA	8/16/11 17:48		257758	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Dichloromethane	5.0	U	5.0	0.27	1	NA	8/16/11 17:48		257758	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Styrene	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Toluene	**0.35**	J	5.0	0.20	1	NA	8/16/11 17:48		257758	
Trichloroethene (TCE)	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
Vinyl Chloride	5.0	U	5.0	0.28	1	NA	8/16/11 17:48		257758	
cis-1,2-Dichloroethene	5.0	U	5.0	0.78	1	NA	8/16/11 17:48		257758	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
m,p-Xylenes	10	U	10	0.67	1	NA	8/16/11 17:48		257758	
n-Butyl Acetate	**0.76**	J	5.0	0.20	1	NA	8/16/11 17:48		257758	
o-Xylene	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	
trans-1,2-Dichloroethene	5.0	U	5.0	0.23	1	NA	8/16/11 17:48		257758	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	8/16/11 17:48		257758	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1107985-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/16/11 17:48	
Dibromofluoromethane	115	89-116	8/16/11 17:48	
Toluene-d8	103	87-121	8/16/11 17:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1108471-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	18	50	NA	8/27/11 06:18		259340	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	8/27/11 06:18		259340	
1,1,2-Trichloroethane	250	U	250	12	50	NA	8/27/11 06:18		259340	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	8/27/11 06:18		259340	
1,1-Dichloroethene (1,1-DCE)	250	U	250	10	50	NA	8/27/11 06:18		259340	
1,2-Dichloroethane	250	U	250	10	50	NA	8/27/11 06:18		259340	
1,2-Dichloropropane	250	U	250	13	50	NA	8/27/11 06:18		259340	
n-Butanol	13000	U	13000	780	50	NA	8/27/11 06:18		259340	
2-Butanone (MEK)	250	U	250	33	50	NA	8/27/11 06:18		259340	
2-Hexanone	250	U	250	13	50	NA	8/27/11 06:18		259340	
4-Methyl-2-pentanone	250	U	250	12	50	NA	8/27/11 06:18		259340	
Acetone	250	U	250	57	50	NA	8/27/11 06:18		259340	
Benzene	250	U	250	10	50	NA	8/27/11 06:18		259340	
Bromodichloromethane	250	U	250	10	50	NA	8/27/11 06:18		259340	
Bromoform	250	U	250	12	50	NA	8/27/11 06:18		259340	
Bromomethane	250	U	250	21	50	NA	8/27/11 06:18		259340	
Carbon Disulfide	250	U	250	45	50	NA	8/27/11 06:18		259340	
Carbon Tetrachloride	250	U	250	13	50	NA	8/27/11 06:18		259340	
Chlorobenzene	250	U	250	10	50	NA	8/27/11 06:18		259340	
Chloroethane	250	U	250	19	50	NA	8/27/11 06:18		259340	
Chloroform	250	U	250	10	50	NA	8/27/11 06:18		259340	
Chloromethane	250	U	250	23	50	NA	8/27/11 06:18		259340	
Dibromochloromethane	250	U	250	10	50	NA	8/27/11 06:18		259340	
Dichloromethane	250	U	250	14	50	NA	8/27/11 06:18		259340	
Ethylbenzene	250	U	250	10	50	NA	8/27/11 06:18		259340	
Styrene	250	U	250	10	50	NA	8/27/11 06:18		259340	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	8/27/11 06:18		259340	
Toluene	250	U	250	10	50	NA	8/27/11 06:18		259340	
Trichloroethene (TCE)	250	U	250	10	50	NA	8/27/11 06:18		259340	
Vinyl Chloride	250	U	250	15	50	NA	8/27/11 06:18		259340	
cis-1,2-Dichloroethene	250	U	250	39	50	NA	8/27/11 06:18		259340	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	8/27/11 06:18		259340	
m,p-Xylenes	500	U	500	34	50	NA	8/27/11 06:18		259340	
n-Butyl Acetate	250	U	250	10	50	NA	8/27/11 06:18		259340	
o-Xylene	250	U	250	10	50	NA	8/27/11 06:18		259340	
trans-1,2-Dichloroethene	250	U	250	12	50	NA	8/27/11 06:18		259340	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	8/27/11 06:18		259340	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104376
Project:	LC34 TR0272 Soils 8/3/11	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1108471-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/27/11 06:18	
Dibromofluoromethane	99	89-116	8/27/11 06:18	
Toluene-d8	107	87-121	8/27/11 06:18	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Collected: 8/3/11
Date Received: 8/5/11
Date Analyzed: 8/19/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-DPT0334-053.0-20110803
Lab Code: R1104376-017

Units: Percent
Basis: As Received

Analyte Name	Method	MRL	Sample Result	LC34-DPT0334-053.0-20110803DUP Duplicate Sample R1104376-017DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	1.0	73.2	73.1	73.1	<1	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Collected: 8/3/11
Date Received: 8/5/11
Date Analyzed: 8/14/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: LC34-DPT0333-044.0-20110803
Lab Code: R1104376-007

Units: µg/Kg
Basis: Dry

Analytical Method: 8260C

Analyte Name	Sample Result	LC34-DPT0333-044.0-2011080 3MS Matrix Spike RQ1107853-05 Result	Spike Amount	% Rec	LC34-DPT0333-044.0-2011080 3DMS Duplicate Matrix Spike RQ1107853-06 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane (TCA)	ND	32200	30600	105	29800	30600	97	36 - 142	8	30
1,1,2,2-Tetrachloroethane	ND	25800	30600	84	25700	30600	84	8 - 164	<1	30
1,1,2-Trichloroethane	ND	28300	30600	92	28100	30600	92	11 - 162	<1	30
1,1-Dichloroethane (1,1-DCA)	ND	31700	30600	104	30200	30600	99	37 - 146	5	30
1,1-Dichloroethene (1,1-DCE)	ND	27500	30600	90	27100	30600	88	24 - 166	2	30
1,2-Dichloroethane	ND	35600	30600	116	33900	30600	111	33 - 144	5	30
1,2-Dichloropropane	ND	31700	30600	104	31200	30600	102	35 - 140	2	30
n-Butanol	ND	1500000	1530000	98	1700000	1530000	111	50 - 150	12	30
2-Butanone (MEK)	ND	25000	30600	82	24800	30600	81	33 - 140	<1	30
2-Hexanone	ND	26200	30600	86	26000	30600	85	5 - 161	<1	30
4-Methyl-2-pentanone	ND	28200	30600	92	28600	30600	94	24 - 155	2	30
Acetone	4300	32400	30600	92	33400	30600	95	6 - 193	3	30
Benzene	ND	30500	30600	100	29500	30600	96	38 - 132	3	30
Bromodichloromethane	ND	32800	30600	107	31000	30600	101	24 - 143	6	30
Bromoform	ND	30800	30600	101	29800	30600	97	8 - 154	4	30
Bromomethane	ND	25100	30600	82	25500	30600	83	21 - 144	1	30
Carbon Disulfide	ND	27500	30600	90	27900	30600	91	26 - 137	1	30
Carbon Tetrachloride	ND	34800	30600	114	31900	30600	104	25 - 141	9	30
Chlorobenzene	ND	30500	30600	100	29500	30600	96	19 - 140	3	30
Chloroethane	ND	32200	30600	105	30900	30600	101	36 - 145	4	30
Chloroform	ND	30800	30600	101	30100	30600	98	34 - 148	2	30
Chloromethane	ND	39500	30600	129	39100	30600	128	36 - 144	<1	30
Dibromochloromethane	ND	31400	30600	102	30400	30600	99	21 - 147	3	30
Dichloromethane	ND	29500	30600	96	28800	30600	94	40 - 137	2	30
Ethylbenzene	ND	32000	30600	105	29500	30600	96	15 - 147	8	30
Styrene	ND	31900	30600	104	29700	30600	97	17 - 137	7	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Collected: 8/3/11
Date Received: 8/5/11
Date Analyzed: 8/14/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: LC34-DPT0333-044.0-20110803
Lab Code: R1104376-007

Units: µg/Kg
Basis: Dry

Analytical Method: 8260C

Analyte Name	Sample Result	LC34-DPT0333-044.0-2011080 3MS Matrix Spike RQ1107853-05 Result	Spike Amount	% Rec	LC34-DPT0333-044.0-2011080 3DMS Duplicate Matrix Spike RQ1107853-06 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Tetrachloroethene (PCE)	ND	33700	30600	110	30600	30600	100	16 - 141	10	30
Toluene	ND	31700	30600	104	29600	30600	97	22 - 148	7	30
Trichloroethene (TCE)	65000	95300	30600	100	94400	30600	96	10 - 182	1	30
Vinyl Chloride	ND	39800	30600	130	37700	30600	123	35 - 154	5	30
cis-1,2-Dichloroethene	1100	31800	30600	101	30200	30600	95	27 - 146	5	30
cis-1,3-Dichloropropene	ND	30700	30600	100	29100	30600	95	18 - 133	5	30
m,p-Xylenes	ND	64400	61200	105	60700	61200	99	12 - 146	6	30
n-Butyl Acetate	6400	33900	30600	90	35100	30600	94	10 - 151	4	30
o-Xylene	ND	32500	30600	106	29300	30600	96	13 - 149	10	30
trans-1,2-Dichloroethene	ND	27400	30600	89	27100	30600	89	32 - 140	<1	30
trans-1,3-Dichloropropene	ND	28800	30600	94	28300	30600	92	10 - 147	2	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Collected: 8/3/11
Date Received: 8/5/11
Date Analyzed: 8/15/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: LC34-DPT0333-045.5-20110803
Lab Code: R1104376-008

Units: µg/Kg
Basis: Dry

Analytical Method: 8260C

Analyte Name	Sample Result	LC34-DPT0333-045.5-2011080 3MS Matrix Spike RQ1107906-05 Result	Spike Amount	% Rec		LC34-DPT0333-045.5-2011080 3DMS Duplicate Matrix Spike RQ1107906-06 Result	Spike Amount	% Rec	% Rec Limits	RPD		RPD Limit
1,1,1-Trichloroethane (TCA)	ND	22000	22100	99		20700	22100	93	76 - 142	6		30
1,1,2,2-Tetrachloroethane	ND	17900	22100	81		18200	22100	82	71 - 120	2		30
1,1,2-Trichloroethane	ND	20300	22100	92		19000	22100	86	80 - 119	7		30
1,1-Dichloroethane (1,1-DCA)	ND	22400	22100	101		21000	22100	95	79 - 134	6		30
1,1-Dichloroethene (1,1-DCE)	ND	18800	22100	85		18100	22100	82	71 - 143	4		30
1,2-Dichloroethane	ND	24600	22100	111		24400	22100	110	73 - 133	<1		30
1,2-Dichloropropane	ND	22300	22100	101		21500	22100	97	84 - 124	4		30
n-Butanol	11000	3490000	1110000	314	*	1430000	1110000	128	50 - 150	84	*	30
2-Butanone (MEK)	ND	17800	22100	81		17400	22100	79	54 - 130	2		30
2-Hexanone	ND	19700	22100	89		18300	22100	83	55 - 125	7		30
4-Methyl-2-pentanone	ND	20100	22100	91		19600	22100	89	59 - 131	3		30
Acetone	ND	20000	22100	91		20200	22100	91	37 - 152	<1		30
Benzene	ND	20500	22100	93		20500	22100	93	81 - 124	<1		30
Bromodichloromethane	ND	22200	22100	101		21700	22100	98	81 - 126	2		30
Bromoform	ND	20900	22100	95		20800	22100	94	61 - 126	<1		30
Bromomethane	ND	18700	22100	85		18100	22100	82	45 - 154	4		30
Carbon Disulfide	ND	20600	22100	93		20200	22100	91	32 - 149	2		30
Carbon Tetrachloride	ND	22800	22100	103		22500	22100	102	71 - 146	2		30
Chlorobenzene	ND	20700	22100	94		20500	22100	93	80 - 125	1		30
Chloroethane	ND	22000	22100	99		21700	22100	98	68 - 148	1		30
Chloroform	60	21900	22100	99		20900	22100	94	81 - 131	5		30
Chloromethane	ND	26300	22100	119		25700	22100	116	61 - 151	2		30
Dibromochloromethane	ND	21900	22100	99		21400	22100	97	74 - 130	3		30
Dichloromethane	ND	20300	22100	92		19600	22100	89	78 - 125	4		30
Ethylbenzene	ND	21000	22100	95		20800	22100	94	84 - 127	1		30
Styrene	ND	21200	22100	96		20800	22100	94	43 - 146	2		30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Collected: 8/3/11
Date Received: 8/5/11
Date Analyzed: 8/15/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: LC34-DPT0333-045.5-20110803
Lab Code: R1104376-008

Units: µg/Kg
Basis: Dry

Analytical Method: 8260C

Analyte Name	Sample Result	LC34-DPT0333-045.5-2011080 3MS Matrix Spike RQ1107906-05 Result	Spike Amount	% Rec	LC34-DPT0333-045.5-2011080 3DMS Duplicate Matrix Spike RQ1107906-06 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Tetrachloroethene (PCE)	ND	22400	22100	101	21700	22100	98	66 - 142	3	30
Toluene	ND	21100	22100	96	21000	22100	95	81 - 125	<1	30
Trichloroethene (TCE)	64000	84700	22100	96	84700	22100	96	71 - 133	<1	30
Vinyl Chloride	ND	26100	22100	118	24400	22100	110	72 - 154	7	30
cis-1,2-Dichloroethene	3300	24400	22100	96	23300	22100	91	72 - 137	4	30
cis-1,3-Dichloropropene	ND	20900	22100	95	20700	22100	94	71 - 120	1	30
m,p-Xylenes	ND	42600	44200	96	41600	44200	94	80 - 129	2	30
n-Butyl Acetate	4900	29000	22100	109	26600	22100	98	18 - 159	9	30
o-Xylene	ND	21300	22100	96	21000	22100	95	80 - 126	1	30
trans-1,2-Dichloroethene	64	19400	22100	88	19100	22100	86	77 - 130	2	30
trans-1,3-Dichloropropene	ND	20800	22100	94	20700	22100	94	67 - 122	<1	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/12/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257243

Analyte Name	Lab Control Sample RQ1107824-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	21.5	20.0	107	68 - 129
1,1,2,2-Tetrachloroethane	19.2	20.0	96	72 - 133
1,1,2-Trichloroethane	19.2	20.0	96	75 - 123
1,1-Dichloroethane (1,1-DCA)	22.4	20.0	112	71 - 129
1,1-Dichloroethene (1,1-DCE)	18.3	20.0	91	71 - 133
1,2-Dichloroethane	25.8	20.0	129	69 - 129
1,2-Dichloropropane	21.7	20.0	108	76 - 123
2-Butanone (MEK)	22.4	20.0	112	69 - 129
2-Hexanone	20.4	20.0	102	62 - 130
4-Methyl-2-pentanone	20.3	20.0	102	64 - 136
Acetone	22.0	20.0	110	53 - 148
Benzene	20.5	20.0	102	74 - 120
Bromodichloromethane	21.8	20.0	109	74 - 123
Bromoform	19.7	20.0	98	67 - 129
Bromomethane	18.4	20.0	92	53 - 143
Carbon Disulfide	23.7	20.0	118	58 - 139
Carbon Tetrachloride	23.2	20.0	116	62 - 136
Chlorobenzene	20.4	20.0	102	72 - 126
Chloroethane	23.1	20.0	116	69 - 136
Chloroform	21.8	20.0	109	72 - 128
Chloromethane	25.9	20.0	130	60 - 140
Dibromochloromethane	20.1	20.0	100	70 - 133
Dichloromethane	19.9	20.0	100	75 - 122
Ethylbenzene	20.0	20.0	100	68 - 129
Styrene	20.2	20.0	101	68 - 125
Tetrachloroethene (PCE)	18.7	20.0	93	64 - 133
Toluene	20.2	20.0	101	70 - 126
Trichloroethene (TCE)	19.5	20.0	98	71 - 125
Vinyl Chloride	27.9	20.0	140	65 - 143
cis-1,2-Dichloroethene	20.7	20.0	104	74 - 125
cis-1,3-Dichloropropene	20.9	20.0	105	71 - 118
m,p-Xylenes	40.6	40.0	102	68 - 129

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/12/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257243

Lab Control Sample
RQ1107824-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
o-Xylene	20.3	20.0	102	69 - 127
trans-1,2-Dichloroethene	18.9	20.0	95	71 - 127
trans-1,3-Dichloropropene	20.0	20.0	100	70 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/13/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257352

Lab Control Sample
RQ1107841-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.7	20.0	93	68 - 129
1,1,2,2-Tetrachloroethane	18.7	20.0	93	72 - 133
1,1,2-Trichloroethane	18.3	20.0	92	75 - 123
1,1-Dichloroethane (1,1-DCA)	19.8	20.0	99	71 - 129
1,1-Dichloroethene (1,1-DCE)	16.4	20.0	82	71 - 133
1,2-Dichloroethane	24.2	20.0	121	69 - 129
1,2-Dichloropropane	20.0	20.0	100	76 - 123
2-Butanone (MEK)	22.2	20.0	111	69 - 129
2-Hexanone	22.0	20.0	110	62 - 130
4-Methyl-2-pentanone	21.6	20.0	108	64 - 136
Acetone	22.1	20.0	110	53 - 148
Benzene	18.3	20.0	92	74 - 120
Bromodichloromethane	20.6	20.0	103	74 - 123
Bromoform	19.5	20.0	97	67 - 129
Bromomethane	16.9	20.0	84	53 - 143
Carbon Disulfide	23.1	20.0	116	58 - 139
Carbon Tetrachloride	18.5	20.0	92	62 - 136
Chlorobenzene	17.9	20.0	90	72 - 126
Chloroethane	20.3	20.0	102	69 - 136
Chloroform	19.4	20.0	97	72 - 128
Chloromethane	24.2	20.0	121	60 - 140
Dibromochloromethane	18.9	20.0	94	70 - 133
Dichloromethane	18.7	20.0	94	75 - 122
Ethylbenzene	16.9	20.0	84	68 - 129
Styrene	18.2	20.0	91	68 - 125
Tetrachloroethene (PCE)	16.5	20.0	82	64 - 133
Toluene	17.5	20.0	88	70 - 126
Trichloroethene (TCE)	18.3	20.0	92	71 - 125
Vinyl Chloride	26.7	20.0	134	65 - 143
cis-1,2-Dichloroethene	18.5	20.0	93	74 - 125
cis-1,3-Dichloropropene	19.8	20.0	99	71 - 118
m,p-Xylenes	35.0	40.0	88	68 - 129

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/13/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257352

Lab Control Sample
RQ1107841-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
o-Xylene	17.4	20.0	87	69 - 127
trans-1,2-Dichloroethene	17.4	20.0	87	71 - 127
trans-1,3-Dichloropropene	18.5	20.0	92	70 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/14/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257368

Analyte Name	Lab Control Sample RQ1107853-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.6	20.0	98	68 - 129
1,1,2,2-Tetrachloroethane	16.2	20.0	81	72 - 133
1,1,2-Trichloroethane	16.8	20.0	84	75 - 123
1,1-Dichloroethane (1,1-DCA)	19.9	20.0	99	71 - 129
1,1-Dichloroethene (1,1-DCE)	17.7	20.0	88	71 - 133
1,2-Dichloroethane	22.0	20.0	110	69 - 129
1,2-Dichloropropane	20.5	20.0	103	76 - 123
2-Butanone (MEK)	15.5	20.0	77	69 - 129
2-Hexanone	15.8	20.0	79	62 - 130
4-Methyl-2-pentanone	16.7	20.0	84	64 - 136
Acetone	19.3	20.0	96	53 - 148
Benzene	19.2	20.0	96	74 - 120
Bromodichloromethane	19.9	20.0	100	74 - 123
Bromoform	17.8	20.0	89	67 - 129
Bromomethane	17.6	20.0	88	53 - 143
Carbon Disulfide	19.1	20.0	95	58 - 139
Carbon Tetrachloride	21.0	20.0	105	62 - 136
Chlorobenzene	19.0	20.0	95	72 - 126
Chloroethane	20.6	20.0	103	69 - 136
Chloroform	19.7	20.0	99	72 - 128
Chloromethane	24.3	20.0	121	60 - 140
Dibromochloromethane	19.0	20.0	95	70 - 133
Dichloromethane	18.9	20.0	94	75 - 122
Ethylbenzene	19.6	20.0	98	68 - 129
Styrene	19.2	20.0	96	68 - 125
Tetrachloroethene (PCE)	20.2	20.0	101	64 - 133
Toluene	19.5	20.0	98	70 - 126
Trichloroethene (TCE)	19.6	20.0	98	71 - 125
Vinyl Chloride	24.9	20.0	125	65 - 143
cis-1,2-Dichloroethene	19.3	20.0	97	74 - 125
cis-1,3-Dichloropropene	19.0	20.0	95	71 - 118
m,p-Xylenes	39.8	40.0	99	68 - 129

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/14/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257368

Lab Control Sample
RQ1107853-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
o-Xylene	19.6	20.0	98	69 - 127
trans-1,2-Dichloroethene	18.2	20.0	91	71 - 127
trans-1,3-Dichloropropene	18.7	20.0	94	70 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/15/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257554

Analyte Name	Lab Control Sample RQ1107906-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.4	20.0	97	68 - 129
1,1,2,2-Tetrachloroethane	16.2	20.0	81	72 - 133
1,1,2-Trichloroethane	17.4	20.0	87	75 - 123
1,1-Dichloroethane (1,1-DCA)	19.9	20.0	100	71 - 129
1,1-Dichloroethene (1,1-DCE)	17.1	20.0	86	71 - 133
1,2-Dichloroethane	21.6	20.0	108	69 - 129
1,2-Dichloropropane	19.6	20.0	98	76 - 123
2-Butanone (MEK)	14.9	20.0	74	69 - 129
2-Hexanone	16.0	20.0	80	62 - 130
4-Methyl-2-pentanone	16.0	20.0	80	64 - 136
Acetone	20.2	20.0	101	53 - 148
Benzene	18.4	20.0	92	74 - 120
Bromodichloromethane	20.1	20.0	100	74 - 123
Bromoform	17.7	20.0	89	67 - 129
Bromomethane	17.8	20.0	89	53 - 143
Carbon Disulfide	18.4	20.0	92	58 - 139
Carbon Tetrachloride	20.9	20.0	104	62 - 136
Chlorobenzene	19.3	20.0	97	72 - 126
Chloroethane	21.0	20.0	105	69 - 136
Chloroform	19.2	20.0	96	72 - 128
Chloromethane	24.0	20.0	120	60 - 140
Dibromochloromethane	19.2	20.0	96	70 - 133
Dichloromethane	17.4	20.0	87	75 - 122
Ethylbenzene	19.4	20.0	97	68 - 129
Styrene	19.2	20.0	96	68 - 125
Tetrachloroethene (PCE)	21.1	20.0	106	64 - 133
Toluene	19.0	20.0	95	70 - 126
Trichloroethene (TCE)	19.7	20.0	99	71 - 125
Vinyl Chloride	23.9	20.0	120	65 - 143
cis-1,2-Dichloroethene	19.1	20.0	95	74 - 125
cis-1,3-Dichloropropene	19.1	20.0	96	71 - 118
m,p-Xylenes	39.4	40.0	99	68 - 129

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/15/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257554

Lab Control Sample
RQ1107906-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
o-Xylene	19.3	20.0	97	69 - 127
trans-1,2-Dichloroethene	17.4	20.0	87	71 - 127
trans-1,3-Dichloropropene	18.0	20.0	90	70 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/16/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257758

	Lab Control Sample RQ1107985-03				Duplicate Lab Control Sample RQ1107985-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	22.4	20.0	112		24.7	20.0	124		68 - 129	10	30
1,1,2,2-Tetrachloroethane	18.5	20.0	92		17.9	20.0	90		72 - 133	3	30
1,1,2-Trichloroethane	17.6	20.0	88		18.6	20.0	93		75 - 123	6	30
1,1-Dichloroethane (1,1-DCA)	22.3	20.0	112		24.3	20.0	121		71 - 129	8	30
1,1-Dichloroethene (1,1-DCE)	19.1	20.0	95		19.9	20.0	99		71 - 133	4	30
1,2-Dichloroethane	25.9	20.0	130	*	27.4	20.0	137	*	69 - 129	6	30
1,2-Dichloropropane	21.4	20.0	107		24.1	20.0	120		76 - 123	12	30
2-Butanone (MEK)	24.2	20.0	121		26.4	20.0	132	*	69 - 129	9	30
2-Hexanone	21.1	20.0	105		22.1	20.0	110		62 - 130	5	30
4-Methyl-2-pentanone	19.4	20.0	97		21.9	20.0	110		64 - 136	12	30
Acetone	24.5	20.0	122		28.8	20.0	144		53 - 148	16	30
Benzene	20.1	20.0	100		21.7	20.0	108		74 - 120	8	30
Bromodichloromethane	21.7	20.0	108		23.5	20.0	117		74 - 123	8	30
Bromoform	18.7	20.0	93		20.2	20.0	101		67 - 129	8	30
Bromomethane	18.4	20.0	92		20.0	20.0	100		53 - 143	9	30
Carbon Disulfide	23.9	20.0	119		28.2	20.0	141	*	58 - 139	17	30
Carbon Tetrachloride	23.0	20.0	115		26.8	20.0	134		62 - 136	15	30
Chlorobenzene	18.7	20.0	94		20.7	20.0	103		72 - 126	10	30
Chloroethane	22.7	20.0	114		24.3	20.0	121		69 - 136	7	30
Chloroform	22.2	20.0	111		23.2	20.0	116		72 - 128	5	30
Chloromethane	29.2	20.0	146	*	32.3	20.0	162	*	60 - 140	10	30
Dibromochloromethane	18.4	20.0	92		19.6	20.0	98		70 - 133	7	30
Dichloromethane	21.2	20.0	106		21.4	20.0	107		75 - 122	<1	30
Ethylbenzene	19.1	20.0	95		21.4	20.0	107		68 - 129	12	30
Styrene	18.8	20.0	94		20.6	20.0	103		68 - 125	9	30
Tetrachloroethene (PCE)	18.4	20.0	92		20.6	20.0	103		64 - 133	11	30
Toluene	19.0	20.0	95		21.4	20.0	107		70 - 126	12	30
Trichloroethene (TCE)	20.3	20.0	102		23.3	20.0	116		71 - 125	13	30
Vinyl Chloride	35.8	20.0	179	*	37.1	20.0	185	*	65 - 143	3	30
cis-1,2-Dichloroethene	21.4	20.0	107		22.2	20.0	111		74 - 125	4	30
cis-1,3-Dichloropropene	20.1	20.0	101		21.2	20.0	106		71 - 118	5	30
m,p-Xylenes	38.9	40.0	97		43.1	40.0	108		68 - 129	10	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/16/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 257758

	Lab Control Sample RQ1107985-03			Duplicate Lab Control Sample RQ1107985-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	19.6	20.0	98	20.6	20.0	103	69 - 127	5	30
trans-1,2-Dichloroethene	20.6	20.0	103	21.1	20.0	105	71 - 127	2	30
trans-1,3-Dichloropropene	17.9	20.0	90	19.1	20.0	95	70 - 120	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/26/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 259340

Analyte Name	Lab Control Sample RQ1108471-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.3	20.0	91	72 - 128
1,1,2,2-Tetrachloroethane	19.1	20.0	96	72 - 131
1,1,2-Trichloroethane	19.9	20.0	100	80 - 122
1,1-Dichloroethane (1,1-DCA)	19.7	20.0	98	76 - 124
1,1-Dichloroethene (1,1-DCE)	19.5	20.0	97	72 - 129
1,2-Dichloroethane	17.6	20.0	88	73 - 127
1,2-Dichloropropane	20.4	20.0	102	80 - 123
n-Butanol	1010	1000	101	70 - 130
2-Butanone (MEK)	18.5	20.0	92	60 - 133
2-Hexanone	21.7	20.0	108	61 - 131
4-Methyl-2-pentanone	20.1	20.0	100	61 - 132
Acetone	18.5	20.0	93	54 - 139
Benzene	20.2	20.0	101	78 - 121
Bromodichloromethane	19.1	20.0	95	80 - 125
Bromoform	21.0	20.0	105	68 - 130
Bromomethane	18.5	20.0	93	57 - 144
Carbon Disulfide	23.2	20.0	116	52 - 140
Carbon Tetrachloride	20.1	20.0	100	68 - 133
Chlorobenzene	20.5	20.0	102	80 - 121
Chloroethane	20.4	20.0	102	71 - 130
Chloroform	19.4	20.0	97	78 - 125
Chloromethane	18.7	20.0	93	61 - 138
Dibromochloromethane	20.0	20.0	100	78 - 133
Dichloromethane	19.4	20.0	97	75 - 125
Ethylbenzene	21.1	20.0	106	78 - 123
Styrene	20.9	20.0	105	80 - 132
Tetrachloroethene (PCE)	20.8	20.0	104	72 - 131
Toluene	21.3	20.0	107	78 - 122
Trichloroethene (TCE)	22.3	20.0	112	74 - 127
Vinyl Chloride	20.7	20.0	103	72 - 138
cis-1,2-Dichloroethene	19.6	20.0	98	78 - 122
cis-1,3-Dichloropropene	18.9	20.0	95	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 TR0272 Soils 8/3/11
Sample Matrix: Soil

Service Request: R1104376
Date Analyzed: 8/26/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 259340

Lab Control Sample
RQ1108471-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	42.1	40.0	105	79 - 126
n-Butyl Acetate	21.5	20.0	107	31 - 144
o-Xylene	21.0	20.0	105	77 - 118
trans-1,2-Dichloroethene	20.7	20.0	104	75 - 121
trans-1,3-Dichloropropene	18.4	20.0	92	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services™ CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

~~1 Mustard Street, Suite 250, Rochester, NY 14609~~ TB | 585.288.5380 | 800.695.7222 | 585.288.8475 (fax) PAGE 1 OF 2

Project Name: LC34	Project Number: TR0272
Project Manager: Cory Repta	Report CC: —
Company/Address: GeoSyntec	
6770 S. Washington Ave. Ste. 3	
Titusville, FL 32780	
Phone #: 321-269-5880	E-mail: crepta@geosyntec.com.
Sampler's Signature:	Sampler's Printed Name: David Sizemore

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 8

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 C (VOC + MBK)	REMARKS/ ALTERNATE DESCRIPTION
LC34-DPT0332-037.0	20110803-001	08/03/11	903	Soil		X	
LC34-DPT0332-043.5	20110803-002		921				
LC34-DPT0332-045.0	20110803-003		947				
LC34-DPT0332-048.0	20110803-004		956				
LC34-DPT0332-053.0	20110803-005		1013				
LC34-DPT0333-037.0	20110803-006		1114				
LC34-DPT0333-044.0	20110803-007		1128				
LC34-DPT0333-045.5	20110803-008		1150				
LC34-DPT0333-047.0	20110803-009		1155				
LC34-DPT0333-048.5	20110803-010		1157				

GC/MS VOA's ☐ 8260 ☐ 624 ☐ CLP
GC/MS SVOA's ☐ 8270 ☐ 625
GC VOA's ☐ 8021 ☐ 601/602
PESTICIDES ☐ 8081 ☐ 608
PCB's ☐ 8082 ☐ 608
METALS, TOTAL (List in comments below)
METALS, DISSOLVED (List in comments below)

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other ICe

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: FL

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
__X__ Standard

REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
__V__ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with
Edata __X__ Yes ____ No

INVOICE INFORMATION
PO #:
BILL TO:

R1104376 GeoSyntec Consultants LC34 TR0272

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Bartlett	Printed Name: Ed Ott	Printed Name:	Printed Name: Teresa LaFave	Printed Name:	Printed Name:
Firm: GeoSyntec	Firm:	Firm:	Firm: CAS	Firm:	Firm:
Date/Time: 08/04/11 — 1680	Date/Time:	Date/Time:	Date/Time: 8/5/11 0939	Date/Time:	Date/Time:

Distribution: White - Lab Copy; Yellow - Return To Originator

SCOC Rev. 10/2010

Columbia Analytical Services™ CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

~~1 Mustard Street, Suite 250, Rochester, NY 14609~~ JB | 585.288.5380 | 800.695.7222 | 585.288.8475 (fax) PAGE 2 OF 2

Project Name: LC34	Project Number: TR0272
Project Manager: CORY REPTA	Report CC: —
Company/Address: GEOSYNTEC 6770 S. WASHINGTON AVE. STE. 3 TITUSVILLE, FL 32780	
Phone #: 321-269-5880	E-mail: crepta@geosyntec.com
Sampler's Signature:	Sampler's Printed Name: DANIEL SILLMORE

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 8

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOA's ☐8260 ☐624 ☐CLP	GC/MS SVOA's ☐8270 ☐625	GC VOA's ☐8021 ☐601/602	PESTICIDES ☐8081 ☐608	PCBs ☐8082 ☐608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	8260C (VOC + MBA)						REMARKS/ ALTERNATE DESCRIPTION
LC34-DPT0333-053.0	-20110803-001	08/03/11	1227	Soil									X						
LC34-DPT0334-034.5	-20110803-002		1404																
LC34-DPT334-037.0	-20110803-003		1413																
LC34-DPT334-045.5	-20110803-004		1457																
LC34-DPT334-047.0	-20110803-005		1507																
LC34-DPT334-048.5	-20110803-006		1513																
LC34-DPT334-053.0	-20110803-007		1532																
LC34-DPT-IDW183866	-20110803-008		1552	Water															
LC34-IDW183865-2	20110803-009		1600																
LC34-TB-20110803	-010	NA	NA										X						

Preservative Key: 0. NONE; 1. HCl; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other ICE

SPECIAL INSTRUCTIONS/COMMENTS
Metals
→ See R1104287

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: FL

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
__X__ Standard

REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
__X__ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata __X__ Yes ____ No

INVOICE INFORMATION
PO #:
BILL TO:

R1104376

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: JOSEPH BARTLETT	Signature: FEDEX	Signature	Signature: Sherry Lafave	Signature	Signature
Printed Name: GEOSYNTEC	Printed Name	Printed Name	Printed Name: Cathy Lafave	Printed Name	Printed Name
Firm	Firm	Firm	Firm: CAS	Firm	Firm
Date/Time: 08/04/11 1630	Date/Time	Date/Time	Date/Time: 8/5/11 0939	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return To Originator

SCOC Rev. 10/2010

Cooler Receipt And Preservation Check Form

Project/Client Synaptic Folder Number 811-4376.

Cooler received on 8/5/11 by: KD **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A	IDW 183866 (1 vial)	
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC),	CLIENT			
7.	Temperature of cooler(s) upon receipt:	3.1°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 8/5/11 0948

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 8/9/11

Cooler Breakdown: Date: 8/8/11 Time: 1031 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	~~YES~~	NO
2.	Did all bottle labels and tags agree with custody papers?	~~YES~~	NO
3.	Were correct containers used for the tests indicated?	~~YES~~	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: _____

Other Comments:

PC Secondary Review: KB 9/6/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

September 06, 2011 Service Request No: R1104535

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272 8/12/11

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on August 13, 2011. For your reference, these analyses have been assigned our service request number **R1104535**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1104535
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	8/12/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Three (3) water samples including one (1) Trip Blank were collected by the client on 8/12/11 and were received for analysis at Columbia Analytical Services on 8/13/11 via a national courier The samples were received at a cooler temperature of 5.3°C within the guidelines of 0-6°C.

Organic Compounds

Three (3) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) water samples were also analyzed for GC Method RSK-175 and Organic Acids by HPLC.

Initial and Continuing Calibration Criteria was met for all samples for 8260C except the Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Dichlorodifluoromethane (-21.7%) on the 8/16/11 analytical run and MEK (-20.6%), Carbon Tetrachloride (-20.2%), and Dichlorodifluoromethane (-20.6%) on the 8/17/11 run. All detected concentrations for these compounds in samples associated with these CCV's should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. Laboratory Control Samples (LCS) and LCS Duplicate recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples had hits above the calibration range of the standards and required multiple dilutions. The samples were repeated at the appropriate dilution for the above range hits. Subsequent hits from the dilutions are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All samples were initially analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

The Laboratory Method Blanks were free from contamination.

The Primary Standard mix for RSK expired on 8/6/11. The Secondary Standard mix expired on 8/9/11. Both standards have shown little to no degradation over the past year. New standards have been ordered but not yet received.

No other analytical or QC problems were encountered.

Approved by _____ **Date** 9/7/11

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, and TOC by 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F, Dissolved metals by ICP 6010C, and Anions: Chloride and Sulfate by IC method 300.0 and Nitrate and Nitrite by method 353.2. The Nitrate and Nitrite were analyzed by this alternative method in order to meet the appropriate holding time for the analyses which were received on a weekend. The client was notified in the receipt acknowledgment for the samples. The Dissolved metals were filtered in the laboratory.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within QC acceptance limits.

All holding times were met for these analyses.

All Laboratory Method Blanks were free from contamination except for Dissolved Iron and Manganese. Affected data is flagged as "B" for these compounds.

No problems were encountered during the analyses of these samples.

Approved by Karen Beesley **Date** 9/7/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1104535

Lab ID	Client ID
R1104535-001	LC34-RW0007-038.5-20110812
R1104535-002	LC34-RW0008-052.0-20110812
R1104535-003	LC34-TB-20110812
R1104535-004	LC34-RW0007-038.5-20110812 Diss.
R1104535-005	LC34-RW0008-052.0-20110812 Diss.

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1126
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0007-038.5-20110812		
Lab Code:	R1104535-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**460**		mg/L	2.0	1	NA	8/16/11 09:00	
Bromide	300.0	**11.8**		mg/L	1.0	10	NA	8/15/11 21:09	
Carbon, Total Organic (TOC), Average	9060A	**191**		mg/L	20	20	NA	8/29/11 22:08	
Chloride	300.0	**264**		mg/L	10	50	NA	8/16/11 17:32	
Iodide	300.0	**15.2**		mg/L	2.0	10	NA	8/16/11 16:36	
Nitrate as Nitrogen	Calculation	0.05	U	mg/L	0.05	1	NA		
Nitrate+Nitrite as Nitrogen	353.2	0.050	U	mg/L	0.050	1	NA	8/19/11 12:02	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	8/13/11 12:23	
Sulfate	300.0	**17.8**		mg/L	2.0	10	NA	8/15/11 21:09	
Sulfide, Total	SM 4500-S2- F	**9.2**		mg/L	1.0	1	NA	8/17/11 09:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1048
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0008-052.0-20110812 Diss.		
Lab Code:	R1104535-005	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/17/11	8/18/11 15:50	
Iron, Dissolved	6010C	**180**	B	µg/L	100	1	8/17/11	8/18/11 15:50	
Manganese, Dissolved	6010C	**23**	B	µg/L	10	1	8/17/11	8/18/11 15:50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1126
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0007-038.5-20110812	**Units:**	µg/L
Lab Code:	R1104535-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,1,2,2-Tetrachloroethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,1,2-Trichloroethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,1,2-Trichloro-1,2,2-trifluoroethane	**16000**		1300	250	NA	8/16/11 19:12		257650	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,2,4-Trichlorobenzene	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,2-Dibromoethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,2-Dichlorobenzene	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,2-Dichloroethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,2-Dichloropropane	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,3-Dichlorobenzene	1300	U	1300	250	NA	8/16/11 19:12		257650	
1,4-Dichlorobenzene	1300	U	1300	250	NA	8/16/11 19:12		257650	
n-Butanol	**230000**		63000	250	NA	8/16/11 19:12		257650	
2-Butanone (MEK)	2500	U	2500	250	NA	8/16/11 19:12		257650	
2-Hexanone	2500	U	2500	250	NA	8/16/11 19:12		257650	
4-Methyl-2-pentanone	2500	U	2500	250	NA	8/16/11 19:12		257650	
Acetone	5000	U	5000	250	NA	8/16/11 19:12		257650	
Benzene	1300	U	1300	250	NA	8/16/11 19:12		257650	
Bromodichloromethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
Bromoform	1300	U	1300	250	NA	8/16/11 19:12		257650	
Bromomethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
Carbon Disulfide	2500	U	2500	250	NA	8/16/11 19:12		257650	
Carbon Tetrachloride	1300	U	1300	250	NA	8/16/11 19:12		257650	
Chlorobenzene	1300	U	1300	250	NA	8/16/11 19:12		257650	
Chloroethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
Chloroform	1300	U	1300	250	NA	8/16/11 19:12		257650	
Chloromethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
Cyclohexane	2500	U	2500	250	NA	8/16/11 19:12		257650	
Dibromochloromethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	250	NA	8/16/11 19:12		257650	
Dichloromethane	1300	U	1300	250	NA	8/16/11 19:12		257650	
Ethylbenzene	1300	U	1300	250	NA	8/16/11 19:12		257650	
Isopropylbenzene (Cumene)	1300	U	1300	250	NA	8/16/11 19:12		257650	
Methyl Acetate	2500	U	2500	250	NA	8/16/11 19:12		257650	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1126
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0007-038.5-20110812	**Units:**	µg/L
Lab Code:	R1104535-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	250	NA	8/16/11 19:12		257650	
Methylcyclohexane	2500	U	2500	250	NA	8/16/11 19:12		257650	
Styrene	1300	U	1300	250	NA	8/16/11 19:12		257650	
Tetrachloroethene (PCE)	1300	U	1300	250	NA	8/16/11 19:12		257650	
Toluene	1300	U	1300	250	NA	8/16/11 19:12		257650	
Trichloroethene (TCE)	**3300**		1300	250	NA	8/16/11 19:12		257650	
Trichlorofluoromethane (CFC 11)	1300	U	1300	250	NA	8/16/11 19:12		257650	
Vinyl Chloride	1300	U	1300	250	NA	8/16/11 19:12		257650	
cis-1,2-Dichloroethene	**26000**		1300	250	NA	8/16/11 19:12		257650	
cis-1,3-Dichloropropene	1300	U	1300	250	NA	8/16/11 19:12		257650	
m,p-Xylenes	1300	U	1300	250	NA	8/16/11 19:12		257650	
n-Butyl Acetate	**33000**		1300	250	NA	8/16/11 19:12		257650	
o-Xylene	1300	U	1300	250	NA	8/16/11 19:12		257650	
trans-1,2-Dichloroethene	1300	U	1300	250	NA	8/16/11 19:12		257650	
trans-1,3-Dichloropropene	1300	U	1300	250	NA	8/16/11 19:12		257650	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	8/16/11 19:12	
Dibromofluoromethane	103	89-119	8/16/11 19:12	
Toluene-d8	103	87-121	8/16/11 19:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1126
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0007-038.5-20110812	**Units:**	µg/L
Lab Code:	R1104535-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**55**		1.0	1	NA	8/17/11 12:18		257822	
Ethene	**14**		1.0	1	NA	8/17/11 12:18		257822	
Methane	**93**		2.0	1	NA	8/17/11 12:18		257822	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1126
Sample Matrix:	Water	**Date Received:**	8/13/11
		Date Analyzed:	8/24/11 05:06
Sample Name:	LC34-RW0007-038.5-20110812	**Units:**	mg/L
Lab Code:	R1104535-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258678
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082311\X0006237.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**260**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**68**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	5.0	U	5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1048
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0008-052.0-20110812		
Lab Code:	R1104535-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**378**		mg/L	2.0	1	NA	8/16/11 09:00	
Bromide	300.0	**17.3**		mg/L	1.0	10	NA	8/15/11 21:23	
Carbon, Total Organic (TOC), Average	9060A	**203**		mg/L	30	30	NA	8/29/11 22:47	
Chloride	300.0	**594**		mg/L	20	100	NA	8/16/11 19:09	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	8/16/11 16:45	
Nitrate as Nitrogen	Calculation	0.05	U	mg/L	0.05	1	NA		
Nitrate+Nitrite as Nitrogen	353.2	0.050	U	mg/L	0.050	1	NA	8/19/11 12:03	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	8/13/11 12:23	
Sulfate	300.0	**23.1**		mg/L	2.0	10	NA	8/15/11 21:23	
Sulfide, Total	SM 4500-S2- F	**10.4**		mg/L	0.98	1	NA	8/17/11 09:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1126
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0007-038.5-20110812 Diss.		
Lab Code:	R1104535-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/17/11	8/18/11 15:34	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/17/11	8/18/11 15:34	
Manganese, Dissolved	6010C	**12**	B	µg/L	10	1	8/17/11	8/18/11 15:34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1048
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0008-052.0-20110812	**Units:**	µg/L
Lab Code:	R1104535-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	100	U	100	20	NA	8/16/11 19:40		257650	
1,1,2,2-Tetrachloroethane	100	U	100	20	NA	8/16/11 19:40		257650	
1,1,2-Trichloroethane	100	U	100	20	NA	8/16/11 19:40		257650	
1,1,2-Trichloro-1,2,2-trifluoroethane	**710**		100	20	NA	8/16/11 19:40		257650	
1,1-Dichloroethane (1,1-DCA)	100	U	100	20	NA	8/16/11 19:40		257650	
1,1-Dichloroethene (1,1-DCE)	100	U	100	20	NA	8/16/11 19:40		257650	
1,2,4-Trichlorobenzene	100	U	100	20	NA	8/16/11 19:40		257650	
1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	20	NA	8/16/11 19:40		257650	
1,2-Dibromoethane	100	U	100	20	NA	8/16/11 19:40		257650	
1,2-Dichlorobenzene	100	U	100	20	NA	8/16/11 19:40		257650	
1,2-Dichloroethane	100	U	100	20	NA	8/16/11 19:40		257650	
1,2-Dichloropropane	100	U	100	20	NA	8/16/11 19:40		257650	
1,3-Dichlorobenzene	100	U	100	20	NA	8/16/11 19:40		257650	
1,4-Dichlorobenzene	100	U	100	20	NA	8/16/11 19:40		257650	
n-Butanol	**120000**		5000	20	NA	8/16/11 19:40		257650	
2-Butanone (MEK)	200	U	200	20	NA	8/16/11 19:40		257650	
2-Hexanone	200	U	200	20	NA	8/16/11 19:40		257650	
4-Methyl-2-pentanone	200	U	200	20	NA	8/16/11 19:40		257650	
Acetone	400	U	400	20	NA	8/16/11 19:40		257650	
Benzene	100	U	100	20	NA	8/16/11 19:40		257650	
Bromodichloromethane	100	U	100	20	NA	8/16/11 19:40		257650	
Bromoform	100	U	100	20	NA	8/16/11 19:40		257650	
Bromomethane	100	U	100	20	NA	8/16/11 19:40		257650	
Carbon Disulfide	200	U	200	20	NA	8/16/11 19:40		257650	
Carbon Tetrachloride	100	U	100	20	NA	8/16/11 19:40		257650	
Chlorobenzene	100	U	100	20	NA	8/16/11 19:40		257650	
Chloroethane	100	U	100	20	NA	8/16/11 19:40		257650	
Chloroform	100	U	100	20	NA	8/16/11 19:40		257650	
Chloromethane	100	U	100	20	NA	8/16/11 19:40		257650	
Cyclohexane	200	U	200	20	NA	8/16/11 19:40		257650	
Dibromochloromethane	100	U	100	20	NA	8/16/11 19:40		257650	
Dichlorodifluoromethane (CFC 12)	100	U	100	20	NA	8/16/11 19:40		257650	
Dichloromethane	100	U	100	20	NA	8/16/11 19:40		257650	
Ethylbenzene	100	U	100	20	NA	8/16/11 19:40		257650	
Isopropylbenzene (Cumene)	100	U	100	20	NA	8/16/11 19:40		257650	
Methyl Acetate	200	U	200	20	NA	8/16/11 19:40		257650	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1048
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0008-052.0-20110812	**Units:**	µg/L
Lab Code:	R1104535-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	100	U	100	20	NA	8/16/11 19:40		257650	
Methylcyclohexane	200	U	200	20	NA	8/16/11 19:40		257650	
Styrene	100	U	100	20	NA	8/16/11 19:40		257650	
Tetrachloroethene (PCE)	100	U	100	20	NA	8/16/11 19:40		257650	
Toluene	100	U	100	20	NA	8/16/11 19:40		257650	
Trichloroethene (TCE)	**1900**		100	20	NA	8/16/11 19:40		257650	
Trichlorofluoromethane (CFC 11)	100	U	100	20	NA	8/16/11 19:40		257650	
Vinyl Chloride	100	U	100	20	NA	8/16/11 19:40		257650	
cis-1,2-Dichloroethene	**1700**		100	20	NA	8/16/11 19:40		257650	
cis-1,3-Dichloropropene	100	U	100	20	NA	8/16/11 19:40		257650	
m,p-Xylenes	100	U	100	20	NA	8/16/11 19:40		257650	
n-Butyl Acetate	**8100**	D	250	50	NA	8/17/11 14:18		257802	
o-Xylene	100	U	100	20	NA	8/16/11 19:40		257650	
trans-1,2-Dichloroethene	100	U	100	20	NA	8/16/11 19:40		257650	
trans-1,3-Dichloropropene	100	U	100	20	NA	8/16/11 19:40		257650	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/16/11 19:40	
Dibromofluoromethane	99	89-119	8/16/11 19:40	
Toluene-d8	103	87-121	8/16/11 19:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1048
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-RW0008-052.0-20110812	**Units:**	µg/L
Lab Code:	R1104535-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**7.8**		1.0	1	NA	8/17/11 12:29		257822	
Ethene	**2.0**		1.0	1	NA	8/17/11 12:29		257822	
Methane	**120**	D	4.0	2	NA	8/17/11 12:49		257822	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11 1048
Sample Matrix:	Water	**Date Received:**	8/13/11
		Date Analyzed:	8/24/11 20:38
Sample Name:	LC34-RW0008-052.0-20110812	**Units:**	mg/L
Lab Code:	R1104535-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258921
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082411\X0006250.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**220**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**150**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	**5.5**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-TB-20110812	**Units:**	µg/L
Lab Code:	R1104535-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,1,2-Trichloroethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,2,4-Trichlorobenzene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,2-Dibromoethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,2-Dichlorobenzene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,2-Dichloroethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,2-Dichloropropane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,3-Dichlorobenzene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
1,4-Dichlorobenzene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
n-Butanol	250	U	250	1	NA	8/16/11 18:44		257650	
2-Butanone (MEK)	10	U	10	1	NA	8/16/11 18:44		257650	
2-Hexanone	10	U	10	1	NA	8/16/11 18:44		257650	
4-Methyl-2-pentanone	10	U	10	1	NA	8/16/11 18:44		257650	
Acetone	20	U	20	1	NA	8/16/11 18:44		257650	
Benzene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Bromodichloromethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Bromoform	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Bromomethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Carbon Disulfide	10	U	10	1	NA	8/16/11 18:44		257650	
Carbon Tetrachloride	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Chlorobenzene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Chloroethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Chloroform	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Chloromethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Cyclohexane	10	U	10	1	NA	8/16/11 18:44		257650	
Dibromochloromethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Dichloromethane	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Ethylbenzene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Isopropylbenzene (Cumene)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Methyl Acetate	10	U	10	1	NA	8/16/11 18:44		257650	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	8/12/11
Sample Matrix:	Water	**Date Received:**	8/13/11
Sample Name:	LC34-TB-20110812	**Units:**	µg/L
Lab Code:	R1104535-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Methylcyclohexane	10	U	10	1	NA	8/16/11 18:44		257650	
Styrene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Tetrachloroethene (PCE)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Toluene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Trichloroethene (TCE)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
Vinyl Chloride	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
cis-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
cis-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
m,p-Xylenes	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
n-Butyl Acetate	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
o-Xylene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
trans-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	
trans-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/16/11 18:44		257650	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	8/16/11 18:44	
Dibromofluoromethane	99	89-119	8/16/11 18:44	
Toluene-d8	104	87-121	8/16/11 18:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104535-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	8/16/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/15/11 20:41	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	8/29/11 17:29	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	8/16/11 11:03	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	8/16/11 14:37	
Nitrate+Nitrite as Nitrogen	353.2	0.050	U	mg/L	0.050	1	NA	8/19/11 11:52	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	8/13/11 12:23	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	8/15/11 20:41	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	8/17/11 09:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104535-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/17/11	8/18/11 14:42	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/17/11	8/18/11 14:42	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/17/11	8/18/11 14:42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104535-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	8/16/11 18:41	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104535-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/17/11	8/18/11 14:54	
Iron, Dissolved	6010C	**1000**		µg/L	100	1	8/17/11	8/18/11 14:54	
Manganese, Dissolved	6010C	**10**		µg/L	10	1	8/17/11	8/18/11 14:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107941-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,1,2-Trichloroethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,2,4-Trichlorobenzene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,2-Dibromoethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,2-Dichlorobenzene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,2-Dichloroethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,2-Dichloropropane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,3-Dichlorobenzene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
1,4-Dichlorobenzene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
n-Butanol	250	U	250	1	NA	8/16/11 12:12		257650	
2-Butanone (MEK)	10	U	10	1	NA	8/16/11 12:12		257650	
2-Hexanone	10	U	10	1	NA	8/16/11 12:12		257650	
4-Methyl-2-pentanone	10	U	10	1	NA	8/16/11 12:12		257650	
Acetone	20	U	20	1	NA	8/16/11 12:12		257650	
Benzene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Bromodichloromethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Bromoform	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Bromomethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Carbon Disulfide	10	U	10	1	NA	8/16/11 12:12		257650	
Carbon Tetrachloride	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Chlorobenzene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Chloroethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Chloroform	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Chloromethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Cyclohexane	10	U	10	1	NA	8/16/11 12:12		257650	
Dibromochloromethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Dichloromethane	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Ethylbenzene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Isopropylbenzene (Cumene)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Methyl Acetate	10	U	10	1	NA	8/16/11 12:12		257650	

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1107941-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Methylcyclohexane	10	U	10	1	NA	8/16/11 12:12		257650	
Styrene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Tetrachloroethene (PCE)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Toluene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Trichloroethene (TCE)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
Vinyl Chloride	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
cis-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
cis-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
m,p-Xylenes	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
n-Butyl Acetate	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
o-Xylene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
trans-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	
trans-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/16/11 12:12		257650	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	8/16/11 12:12	
Dibromofluoromethane	104	89-119	8/16/11 12:12	
Toluene-d8	105	87-121	8/16/11 12:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108002-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,1,2-Trichloroethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,2,4-Trichlorobenzene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,2-Dibromoethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,2-Dichlorobenzene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,2-Dichloroethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,2-Dichloropropane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,3-Dichlorobenzene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
1,4-Dichlorobenzene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
n-Butanol	250	U	250	1	NA	8/17/11 13:21		257802	
2-Butanone (MEK)	10	U	10	1	NA	8/17/11 13:21		257802	
2-Hexanone	10	U	10	1	NA	8/17/11 13:21		257802	
4-Methyl-2-pentanone	10	U	10	1	NA	8/17/11 13:21		257802	
Acetone	20	U	20	1	NA	8/17/11 13:21		257802	
Benzene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Bromodichloromethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Bromoform	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Bromomethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Carbon Disulfide	10	U	10	1	NA	8/17/11 13:21		257802	
Carbon Tetrachloride	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Chlorobenzene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Chloroethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Chloroform	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Chloromethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Cyclohexane	10	U	10	1	NA	8/17/11 13:21		257802	
Dibromochloromethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Dichloromethane	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Ethylbenzene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Isopropylbenzene (Cumene)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Methyl Acetate	10	U	10	1	NA	8/17/11 13:21		257802	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108002-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Methylcyclohexane	10	U	10	1	NA	8/17/11 13:21		257802	
Styrene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Tetrachloroethene (PCE)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Toluene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Trichloroethene (TCE)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
Vinyl Chloride	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
cis-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
cis-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
m,p-Xylenes	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
n-Butyl Acetate	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
o-Xylene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
trans-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	
trans-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/17/11 13:21		257802	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/17/11 13:21	
Dibromofluoromethane	104	89-119	8/17/11 13:21	
Toluene-d8	105	87-121	8/17/11 13:21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108007-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	8/17/11 10:06		257822	
Ethene	1.0	U	1.0	1	NA	8/17/11 10:06		257822	
Methane	2.0	U	2.0	1	NA	8/17/11 10:06		257822	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/23/11 13:53
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1108248-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258678
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082311\X0006222.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104535
Project:	ESTCP PED LC34 TR0272 8/12/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/24/11 17:33
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1108345-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258921
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082411\X0006247.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/17/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104535-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1104535-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	6.76	6.6	103	6.77	6.6	103	56 - 138	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/13/11 - 8/29/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1104535-LCS2			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Bromide	300.0	1.01	1.00	101	90 - 110
Carbon, Total Organic (TOC)	9060A	10.2	10.0	102	86 - 117
Carbon, Total Organic (TOC)	9060A	9.72	10.0	97	86 - 117
Carbon, Total Organic (TOC)	9060A	10.1	10.0	101	86 - 117
Carbon, Total Organic (TOC)	9060A	10.4	10.0	104	86 - 117
Chloride	300.0	2.07	2.00	104	90 - 110
Iodide	300.0	1.02	1.00	102	90 - 110
Nitrate+Nitrite as Nitrogen	353.2	0.488	0.500	98	90 - 110
Nitrite as Nitrogen	353.2	0.242	0.250	97	90 - 110
Sulfate	300.0	1.98	2.00	99	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	20.1	20.0	101	72 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/16/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1104535-LCS3			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Chloride	300.0	2.08	2.00	104	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/18/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104535-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	37.4	40	94	80 - 120
Iron, Dissolved	6010C	987	1000	99	80 - 120
Manganese, Dissolved	6010C	500	500	100	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/16/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 257650

Analyte Name	Lab Control Sample RQ1107941-04 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.4	20.0	102	72 - 128
1,1,2,2-Tetrachloroethane	20.3	20.0	102	72 - 131
1,1,2-Trichloroethane	19.1	20.0	95	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.5	20.0	102	68 - 136
1,1-Dichloroethane (1,1-DCA)	22.0	20.0	110	76 - 124
1,1-Dichloroethene (1,1-DCE)	19.8	20.0	99	72 - 129
1,2,4-Trichlorobenzene	19.0	20.0	95	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.5	20.0	98	62 - 131
1,2-Dibromoethane	20.1	20.0	101	78 - 125
1,2-Dichlorobenzene	20.6	20.0	103	79 - 124
1,2-Dichloroethane	19.6	20.0	98	73 - 127
1,2-Dichloropropane	20.1	20.0	101	80 - 123
1,3-Dichlorobenzene	20.6	20.0	103	78 - 124
1,4-Dichlorobenzene	19.9	20.0	99	78 - 123
n-Butanol	1140	1000	114	70 - 130
2-Butanone (MEK)	20.6	20.0	103	60 - 133
2-Hexanone	19.2	20.0	96	61 - 131
4-Methyl-2-pentanone	18.5	20.0	93	61 - 132
Acetone	20.3	20.0	102	54 - 139
Benzene	20.0	20.0	100	78 - 121
Bromodichloromethane	20.7	20.0	103	80 - 125
Bromoform	19.9	20.0	99	68 - 130
Bromomethane	22.7	20.0	114	57 - 144
Carbon Disulfide	21.7	20.0	109	52 - 140
Carbon Tetrachloride	18.6	20.0	93	68 - 133
Chlorobenzene	19.8	20.0	99	80 - 121
Chloroethane	20.6	20.0	103	71 - 130
Chloroform	21.3	20.0	107	78 - 125
Chloromethane	25.8	20.0	129	61 - 138
Cyclohexane	18.0	20.0	90	57 - 126
Dibromochloromethane	19.4	20.0	97	78 - 133
Dichlorodifluoromethane (CFC 12)	24.4	20.0	122	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/16/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 257650

Lab Control Sample
RQ1107941-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.8	20.0	99	75 - 125
Ethylbenzene	20.1	20.0	100	78 - 123
Isopropylbenzene (Cumene)	21.9	20.0	109	73 - 133
Methyl Acetate	21.0	20.0	105	57 - 157
Methyl tert-Butyl Ether	21.1	20.0	106	75 - 126
Methylcyclohexane	18.0	20.0	90	61 - 125
Styrene	20.0	20.0	100	80 - 132
Tetrachloroethene (PCE)	18.7	20.0	93	72 - 131
Toluene	19.8	20.0	99	78 - 122
Trichloroethene (TCE)	20.5	20.0	102	74 - 127
Trichlorofluoromethane (CFC 11)	21.9	20.0	110	69 - 141
Vinyl Chloride	25.0	20.0	125	72 - 138
cis-1,2-Dichloroethene	21.1	20.0	105	78 - 122
cis-1,3-Dichloropropene	19.9	20.0	100	77 - 125
m,p-Xylenes	41.0	40.0	102	79 - 126
n-Butyl Acetate	19.3	20.0	97	31 - 144
o-Xylene	20.0	20.0	100	77 - 118
trans-1,2-Dichloroethene	20.4	20.0	102	75 - 121
trans-1,3-Dichloropropene	19.2	20.0	96	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/17/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 257802

	Lab Control Sample RQ1108002-04			Duplicate Lab Control Sample RQ1108002-05					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	18.6	20.0	93	18.3	20.0	92	72 - 128	2	30
1,1,2,2-Tetrachloroethane	18.3	20.0	91	19.2	20.0	96	72 - 131	5	30
1,1,2-Trichloroethane	18.5	20.0	93	18.4	20.0	92	80 - 122	<1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	17.9	20.0	89	17.6	20.0	88	68 - 136	2	30
1,1-Dichloroethane (1,1-DCA)	20.4	20.0	102	20.0	20.0	100	76 - 124	2	30
1,1-Dichloroethene (1,1-DCE)	18.1	20.0	90	17.9	20.0	90	72 - 129	<1	30
1,2,4-Trichlorobenzene	18.2	20.0	91	18.2	20.0	91	70 - 133	<1	30
1,2-Dibromo-3-chloropropane (DBCP)	17.0	20.0	85	18.8	20.0	94	62 - 131	10	30
1,2-Dibromoethane	18.2	20.0	91	18.7	20.0	94	78 - 125	2	30
1,2-Dichlorobenzene	18.9	20.0	94	19.1	20.0	96	79 - 124	1	30
1,2-Dichloroethane	18.4	20.0	92	18.8	20.0	94	73 - 127	2	30
1,2-Dichloropropane	19.6	20.0	98	19.5	20.0	97	80 - 123	<1	30
1,3-Dichlorobenzene	19.8	20.0	99	19.2	20.0	96	78 - 124	3	30
1,4-Dichlorobenzene	19.6	20.0	98	19.0	20.0	95	78 - 123	3	30
n-Butanol	975	1000	97	874	1000	87	70 - 130	11	30
2-Butanone (MEK)	17.5	20.0	88	17.7	20.0	88	60 - 133	<1	30
2-Hexanone	18.0	20.0	90	17.3	20.0	86	61 - 131	4	30
4-Methyl-2-pentanone	17.6	20.0	88	18.0	20.0	90	61 - 132	3	30
Acetone	17.7	20.0	89	17.5	20.0	88	54 - 139	1	30
Benzene	18.8	20.0	94	18.9	20.0	94	78 - 121	<1	30
Bromodichloromethane	19.3	20.0	97	19.2	20.0	96	80 - 125	<1	30
Bromoform	19.1	20.0	95	18.9	20.0	95	68 - 130	<1	30
Bromomethane	21.0	20.0	105	20.1	20.0	101	57 - 144	4	30
Carbon Disulfide	21.0	20.0	105	19.5	20.0	97	52 - 140	8	30
Carbon Tetrachloride	17.5	20.0	87	17.5	20.0	87	68 - 133	<1	30
Chlorobenzene	18.4	20.0	92	18.6	20.0	93	80 - 121	1	30
Chloroethane	19.2	20.0	96	19.3	20.0	96	71 - 130	<1	30
Chloroform	20.5	20.0	103	19.8	20.0	99	78 - 125	4	30
Chloromethane	25.5	20.0	127	25.0	20.0	125	61 - 138	2	30
Cyclohexane	18.3	20.0	91	18.3	20.0	91	57 - 126	<1	30
Dibromochloromethane	18.1	20.0	90	17.9	20.0	89	78 - 133	1	30
Dichlorodifluoromethane (CFC 12)	22.7	20.0	113	21.3	20.0	107	45 - 159	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/17/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 257802

	Lab Control Sample RQ1108002-04			Duplicate Lab Control Sample RQ1108002-05					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Dichloromethane	18.9	20.0	94	18.4	20.0	92	75 - 125	2	30
Ethylbenzene	19.3	20.0	96	19.3	20.0	96	78 - 123	<1	30
Isopropylbenzene (Cumene)	20.8	20.0	104	21.0	20.0	105	73 - 133	<1	30
Methyl Acetate	18.6	20.0	93	19.3	20.0	96	57 - 157	4	30
Methyl tert-Butyl Ether	18.6	20.0	93	19.0	20.0	95	75 - 126	2	30
Methylcyclohexane	18.1	20.0	90	18.2	20.0	91	61 - 125	<1	30
Styrene	19.2	20.0	96	18.8	20.0	94	80 - 132	2	30
Tetrachloroethene (PCE)	18.4	20.0	92	18.0	20.0	90	72 - 131	2	30
Toluene	18.8	20.0	94	18.7	20.0	93	78 - 122	<1	30
Trichloroethene (TCE)	19.1	20.0	96	19.0	20.0	95	74 - 127	<1	30
Trichlorofluoromethane (CFC 11)	20.0	20.0	100	19.8	20.0	99	69 - 141	1	30
Vinyl Chloride	23.8	20.0	119	23.1	20.0	116	72 - 138	3	30
cis-1,2-Dichloroethene	20.0	20.0	100	18.8	20.0	94	78 - 122	6	30
cis-1,3-Dichloropropene	18.2	20.0	91	18.5	20.0	93	77 - 125	2	30
m,p-Xylenes	39.4	40.0	98	39.3	40.0	98	79 - 126	<1	30
n-Butyl Acetate	18.1	20.0	91	18.6	20.0	93	31 - 144	3	30
o-Xylene	18.8	20.0	94	19.0	20.0	95	77 - 118	1	30
trans-1,2-Dichloroethene	19.2	20.0	96	19.0	20.0	95	75 - 121	<1	30
trans-1,3-Dichloropropene	17.3	20.0	86	17.3	20.0	87	69 - 127	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/17/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 257822

	Lab Control Sample RQ1108007-02			Duplicate Lab Control Sample RQ1108007-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	26.0	26.4	99	24.7	26.4	94	56 - 148	5	30
Ethene	22.8	24.6	93	21.8	24.6	89	58 - 155	5	30
Methane	26.0	26.5	98	24.8	26.5	93	55 - 150	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/23/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 258678

	Lab Control Sample RQ1108248-02			Duplicate Lab Control Sample RQ1108248-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.10	1.00	110	1.13	1.00	113	70 - 130	3	30
Acetic Acid	9.75	10.0	98	9.78	10.0	98	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.1	10.0	101	9.71	10.0	97	78 - 113	4	30
Lactic Acid	9.23	9.97	93	9.25	9.97	93	61 - 109	<1	30
Propionic Acid	9.20	9.97	92	9.64	9.97	97	80 - 125	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/12/11
Sample Matrix: Water

Service Request: R1104535
Date Analyzed: 8/24/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 258921

	Lab Control Sample RQ1108345-02			Duplicate Lab Control Sample RQ1108345-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.18	1.00	118	1.14	1.00	114	70 - 130	3	30
Acetic Acid	9.79	10.0	98	9.67	10.0	97	70 - 135	1	30
Butanoic Acid (Butyric Acid)	10.5	10.0	105	9.76	10.0	98	78 - 113	7	30
Lactic Acid	9.37	9.97	94	9.34	9.97	94	61 - 109	<1	30
Propionic Acid	9.59	9.97	96	9.42	9.97	95	80 - 125	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-RW0007-038.5-20110812	08/12/11	1120	-001, -004	W	16	3	2	1	3	1	3	1	1	1	
LC34-RW0008-052.0-20110812	08/12/11	1048	-002, -005	W	16	3	2	1	3	1	3	1	1	1	
LC34-TB-20110812	08/12/11	NA	-003	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab

R1104535
GeoSyntec Consultants
ESTCP PED LC34 TR0272 8/12/11

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature: [signature]
Printed Name: Joseph Bartlett	Printed Name: FedEx	Printed Name:	Printed Name: Christine M Kuiper
Firm: GeoSyntec Consultants	Firm:	Firm:	Firm: CAS
Date/Time: 08/12/11 — 1630.	Date/Time:	Date/Time:	Date/Time: 8/13/11 0933

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R11-4535.

Cooler received on 8/13/11 by: CMK **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO N/A
5.	Were **Ice** or **Ice packs** present?	(YES)	NO
6.	Where did the bottles originate?		(CAS/ROC) CLIENT

7. Temperature of cooler(s) upon receipt:	5.3°				
Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 8/13/11 0936

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 8/16/11

Cooler Breakdown: Date: 8/15/11 Time: 0950 by: AMT

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH			WC1030516	2/16
≤2	HNO_3				
≤2	H_2SO_4	X		WC1030818	4/12
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-	WC1030986	5/12
	HCl	*	*	411C060	7/12

H_3PO_4 - WC1031046 exp 5/16

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: O-319-005, I-087-002, I-045-004, 053011-2V, 041111-20, 072511-2DD, 062711-22

Other Comments:

PC Secondary Review: KB 9/16/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

September 12, 2011 Service Request No: R1104645

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on August 19, 2011. For your reference, these analyses have been assigned our service request number **R1104645**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1104645
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	8/19/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Three (3) water samples including one (1) Trip Blank were collected by the client on 8/18/11 and were received for analysis at Columbia Analytical Services on 8/19/11 via a national courier The samples were received at a cooler temperature of 3.3°C within the guidelines of 0-6°C. Sulfide bottles as noted on the Cooler Receipt and Preservation Check Form at the end of the report did not indicate preservation on the bottle. Sodium Hydroxide pellets were visible in the bottles, however.

Organic Compounds

Three (3) water samples including one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) samples were also analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples for 8260C.

All surrogate recoveries were within acceptance limits.

Site specific QC is included in the report for locations LC34-RW0008-052.0-20110818 (CAS #R1104645-003) for 8260C. All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within limits except for Bromomethane (outside limits low) and Methyl Acetate (outside limits high). All Relative Percent Difference (RPD) calculations were acceptable. The Laboratory Control Samples (LCS) and LCS Duplicate (RSK & Organic Acids) recoveries were all within QC limits.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

The Laboratory Method Blanks were free from contamination.

The Primary Standard mix for RSK expired on 8/6/11. The Secondary Standard mix expired on 8/9/11. Both standards have shown little to no degradation over the past year. New standards have been ordered but not yet received.

No other analytical or QC problems were encountered.

Approved by Karen Burnham **Date** 9/12/11

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0 The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Site QC is included in the report for Bromide Sulfate and Nitrate for location LC34-RW0007-038.5-20110818 (CAS #R1104645-001) and LC34-RW0008-052.0-20110818 (CAS #R1104645-003) for TOC. All Matrix Spike (MS) recoveries were within QC acceptance limits except for Bromide and Sulfate. All Relative Percent Difference (RPD) calculations were acceptable. All Laboratory Control Sample (LCS) recoveries were within QC limits. Exceedences are flagged as "*".

All holding times were met for these analyses for all analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burdon Date 9/12/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1104645

Lab ID	Client ID
R1104645-001	LC34-RW0007-038.5-20110818
R1104645-002	LC34-RW0007-038.5-20110818 Dissolved
R1104645-003	LC34-RW0008-052.0-20110818
R1104645-004	LC34-RW0008-052.0-20110818 Dissolved
R1104645-005	LC34-TB-20110818

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1018
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0007-038.5-20110818		
Lab Code:	R1104645-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**510**		mg/L	2.0	1	NA	8/31/11 11:30	
Bromide	300.0	**25.6**		mg/L	1.0	10	NA	8/19/11 13:42	
Carbon, Total Organic (TOC), Average	9060A	**363**		mg/L	50	50	NA	8/29/11 19:28	
Chloride	300.0	**421**		mg/L	20	100	NA	8/19/11 14:37	
Iodide	300.0	**16.8**		mg/L	2.0	10	NA	9/1/11 14:03	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/19/11 13:42	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/19/11 14:37	
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/19/11 13:42	
Sulfide, Total	SM 4500-S2- F	**14.7**		mg/L	0.98	1	NA	8/22/11 12:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1018
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0007-038.5-20110818 Dissolved		
Lab Code:	R1104645-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/24/11	9/8/11 13:47	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/24/11	9/8/11 13:47	
Manganese, Dissolved	6010C	**19**		µg/L	10	1	8/24/11	8/31/11 02:18	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1018
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0007-038.5-20110818	**Units:**	µg/L
Lab Code:	R1104645-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,1,2,2-Tetrachloroethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,1,2-Trichloroethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		1300	250	NA	8/23/11 19:10		258589	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,2,4-Trichlorobenzene	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,2-Dibromoethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,2-Dichlorobenzene	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,2-Dichloroethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,2-Dichloropropane	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,3-Dichlorobenzene	1300	U	1300	250	NA	8/23/11 19:10		258589	
1,4-Dichlorobenzene	1300	U	1300	250	NA	8/23/11 19:10		258589	
n-Butanol	**130000**		63000	250	NA	8/23/11 19:10		258589	
2-Butanone (MEK)	2500	U	2500	250	NA	8/23/11 19:10		258589	
2-Hexanone	2500	U	2500	250	NA	8/23/11 19:10		258589	
4-Methyl-2-pentanone	2500	U	2500	250	NA	8/23/11 19:10		258589	
Acetone	5000	U	5000	250	NA	8/23/11 19:10		258589	
Benzene	1300	U	1300	250	NA	8/23/11 19:10		258589	
Bromodichloromethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
Bromoform	1300	U	1300	250	NA	8/23/11 19:10		258589	
Bromomethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
Carbon Disulfide	2500	U	2500	250	NA	8/23/11 19:10		258589	
Carbon Tetrachloride	1300	U	1300	250	NA	8/23/11 19:10		258589	
Chlorobenzene	1300	U	1300	250	NA	8/23/11 19:10		258589	
Chloroethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
Chloroform	1300	U	1300	250	NA	8/23/11 19:10		258589	
Chloromethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
Cyclohexane	2500	U	2500	250	NA	8/23/11 19:10		258589	
Dibromochloromethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	250	NA	8/23/11 19:10		258589	
Dichloromethane	1300	U	1300	250	NA	8/23/11 19:10		258589	
Ethylbenzene	1300	U	1300	250	NA	8/23/11 19:10		258589	
Isopropylbenzene (Cumene)	1300	U	1300	250	NA	8/23/11 19:10		258589	
Methyl Acetate	2500	U	2500	250	NA	8/23/11 19:10		258589	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1018
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0007-038.5-20110818	**Units:**	µg/L
Lab Code:	R1104645-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	250	NA	8/23/11 19:10		258589	
Methylcyclohexane	2500	U	2500	250	NA	8/23/11 19:10		258589	
Styrene	1300	U	1300	250	NA	8/23/11 19:10		258589	
Tetrachloroethene (PCE)	1300	U	1300	250	NA	8/23/11 19:10		258589	
Toluene	1300	U	1300	250	NA	8/23/11 19:10		258589	
Trichloroethene (TCE)	**7100**		1300	250	NA	8/23/11 19:10		258589	
Trichlorofluoromethane (CFC 11)	1300	U	1300	250	NA	8/23/11 19:10		258589	
Vinyl Chloride	**1400**		1300	250	NA	8/23/11 19:10		258589	
cis-1,2-Dichloroethene	**23000**		1300	250	NA	8/23/11 19:10		258589	
cis-1,3-Dichloropropene	1300	U	1300	250	NA	8/23/11 19:10		258589	
m,p-Xylenes	1300	U	1300	250	NA	8/23/11 19:10		258589	
n-Butyl Acetate	1300	U	1300	250	NA	8/23/11 19:10		258589	
o-Xylene	1300	U	1300	250	NA	8/23/11 19:10		258589	
trans-1,2-Dichloroethene	1300	U	1300	250	NA	8/23/11 19:10		258589	
trans-1,3-Dichloropropene	1300	U	1300	250	NA	8/23/11 19:10		258589	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	8/23/11 19:10	
Dibromofluoromethane	105	89-119	8/23/11 19:10	
Toluene-d8	104	87-121	8/23/11 19:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1018
Sample Matrix:	Water	**Date Received:**	8/19/11
		Date Analyzed:	8/31/11 10:33
Sample Name:	LC34-RW0007-038.5-20110818	**Units:**	µg/L
Lab Code:	R1104645-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	259661
Data File Name:	star040.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**53**		1.0	
74-85-1	Ethene	**14**		1.0	
74-82-8	Methane	**76**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1018
Sample Matrix:	Water	**Date Received:**	8/19/11
		Date Analyzed:	8/25/11 15:15
Sample Name:	LC34-RW0007-038.5-20110818	**Units:**	mg/L
Lab Code:	R1104645-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258928
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082511\X0006267.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**380**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**320**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**11**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1105
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0008-052.0-20110818		
Lab Code:	R1104645-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**369**		mg/L	2.0	1	NA	8/31/11 11:30	
Bromide	300.0	**8.4**		mg/L	1.0	10	NA	8/19/11 14:23	
Carbon, Total Organic (TOC), Average	9060A	**177**		mg/L	20	20	NA	8/29/11 20:48	
Chloride	300.0	**641**		mg/L	20	100	NA	8/19/11 14:51	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	9/1/11 14:11	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/19/11 14:23	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/19/11 14:51	
Sulfate	300.0	**3.2**		mg/L	2.0	10	NA	8/19/11 14:23	
Sulfide, Total	SM 4500-S2- F	**16.2**		mg/L	0.98	1	NA	8/22/11 12:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1105
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0008-052.0-20110818 Dissolved		
Lab Code:	R1104645-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/24/11	9/8/11 13:53	
Iron, Dissolved	6010C	**120**		µg/L	100	1	8/24/11	9/8/11 13:53	
Manganese, Dissolved	6010C	**20**		µg/L	10	1	8/24/11	8/31/11 02:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1105
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0008-052.0-20110818	**Units:**	µg/L
Lab Code:	R1104645-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50	U	50	10	NA	8/24/11 16:16		258801	
1,1,2,2-Tetrachloroethane	50	U	50	10	NA	8/24/11 16:16		258801	
1,1,2-Trichloroethane	50	U	50	10	NA	8/24/11 16:16		258801	
1,1,2-Trichloro-1,2,2-trifluoroethane	**580**		50	10	NA	8/24/11 16:16		258801	
1,1-Dichloroethane (1,1-DCA)	50	U	50	10	NA	8/24/11 16:16		258801	
1,1-Dichloroethene (1,1-DCE)	50	U	50	10	NA	8/24/11 16:16		258801	
1,2,4-Trichlorobenzene	50	U	50	10	NA	8/24/11 16:16		258801	
1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	10	NA	8/24/11 16:16		258801	
1,2-Dibromoethane	50	U	50	10	NA	8/24/11 16:16		258801	
1,2-Dichlorobenzene	50	U	50	10	NA	8/24/11 16:16		258801	
1,2-Dichloroethane	50	U	50	10	NA	8/24/11 16:16		258801	
1,2-Dichloropropane	50	U	50	10	NA	8/24/11 16:16		258801	
1,3-Dichlorobenzene	50	U	50	10	NA	8/24/11 16:16		258801	
1,4-Dichlorobenzene	50	U	50	10	NA	8/24/11 16:16		258801	
n-Butanol	**9300**		2500	10	NA	8/24/11 16:16		258801	
2-Butanone (MEK)	100	U	100	10	NA	8/24/11 16:16		258801	
2-Hexanone	100	U	100	10	NA	8/24/11 16:16		258801	
4-Methyl-2-pentanone	100	U	100	10	NA	8/24/11 16:16		258801	
Acetone	200	U	200	10	NA	8/24/11 16:16		258801	
Benzene	50	U	50	10	NA	8/24/11 16:16		258801	
Bromodichloromethane	50	U	50	10	NA	8/24/11 16:16		258801	
Bromoform	50	U	50	10	NA	8/24/11 16:16		258801	
Bromomethane	50	U	50	10	NA	8/24/11 16:16		258801	
Carbon Disulfide	100	U	100	10	NA	8/24/11 16:16		258801	
Carbon Tetrachloride	50	U	50	10	NA	8/24/11 16:16		258801	
Chlorobenzene	50	U	50	10	NA	8/24/11 16:16		258801	
Chloroethane	50	U	50	10	NA	8/24/11 16:16		258801	
Chloroform	50	U	50	10	NA	8/24/11 16:16		258801	
Chloromethane	50	U	50	10	NA	8/24/11 16:16		258801	
Cyclohexane	100	U	100	10	NA	8/24/11 16:16		258801	
Dibromochloromethane	50	U	50	10	NA	8/24/11 16:16		258801	
Dichlorodifluoromethane (CFC 12)	50	U	50	10	NA	8/24/11 16:16		258801	
Dichloromethane	50	U	50	10	NA	8/24/11 16:16		258801	
Ethylbenzene	50	U	50	10	NA	8/24/11 16:16		258801	
Isopropylbenzene (Cumene)	50	U	50	10	NA	8/24/11 16:16		258801	
Methyl Acetate	100	U	100	10	NA	8/24/11 16:16		258801	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1105
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0008-052.0-20110818	**Units:**	µg/L
Lab Code:	R1104645-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50	U	50	10	NA	8/24/11 16:16		258801	
Methylcyclohexane	100	U	100	10	NA	8/24/11 16:16		258801	
Styrene	50	U	50	10	NA	8/24/11 16:16		258801	
Tetrachloroethene (PCE)	50	U	50	10	NA	8/24/11 16:16		258801	
Toluene	50	U	50	10	NA	8/24/11 16:16		258801	
Trichloroethene (TCE)	**1700**		50	10	NA	8/24/11 16:16		258801	
Trichlorofluoromethane (CFC 11)	50	U	50	10	NA	8/24/11 16:16		258801	
Vinyl Chloride	**94**		50	10	NA	8/24/11 16:16		258801	
cis-1,2-Dichloroethene	**890**		50	10	NA	8/24/11 16:16		258801	
cis-1,3-Dichloropropene	50	U	50	10	NA	8/24/11 16:16		258801	
m,p-Xylenes	50	U	50	10	NA	8/24/11 16:16		258801	
n-Butyl Acetate	50	U	50	10	NA	8/24/11 16:16		258801	
o-Xylene	50	U	50	10	NA	8/24/11 16:16		258801	
trans-1,2-Dichloroethene	50	U	50	10	NA	8/24/11 16:16		258801	
trans-1,3-Dichloropropene	50	U	50	10	NA	8/24/11 16:16		258801	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	8/24/11 16:16	
Dibromofluoromethane	108	89-119	8/24/11 16:16	
Toluene-d8	106	87-121	8/24/11 16:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1105
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-RW0008-052.0-20110818	**Units:**	µg/L
Lab Code:	R1104645-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**5.2**		2.0	2	NA	8/31/11 10:43		259661	
Ethene	**7.8**		2.0	2	NA	8/31/11 10:43		259661	
Methane	**300**	D	8.0	4	NA	8/31/11 11:05		259661	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11 1105
Sample Matrix:	Water	**Date Received:**	8/19/11
		Date Analyzed:	8/25/11 13:12
Sample Name:	LC34-RW0008-052.0-20110818	**Units:**	mg/L
Lab Code:	R1104645-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258928
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082511\X0006265.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**230**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**150**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**12**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-TB-20110818	**Units:**	µg/L
Lab Code:	R1104645-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,1,2-Trichloroethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,2,4-Trichlorobenzene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,2-Dibromoethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,2-Dichlorobenzene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,2-Dichloroethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,2-Dichloropropane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,3-Dichlorobenzene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
1,4-Dichlorobenzene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
n-Butanol	250	U	250	1	NA	8/23/11 20:10		258589	
2-Butanone (MEK)	10	U	10	1	NA	8/23/11 20:10		258589	
2-Hexanone	10	U	10	1	NA	8/23/11 20:10		258589	
4-Methyl-2-pentanone	10	U	10	1	NA	8/23/11 20:10		258589	
Acetone	20	U	20	1	NA	8/23/11 20:10		258589	
Benzene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Bromodichloromethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Bromoform	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Bromomethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Carbon Disulfide	10	U	10	1	NA	8/23/11 20:10		258589	
Carbon Tetrachloride	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Chlorobenzene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Chloroethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Chloroform	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Chloromethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Cyclohexane	10	U	10	1	NA	8/23/11 20:10		258589	
Dibromochloromethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Dichloromethane	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Ethylbenzene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Isopropylbenzene (Cumene)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Methyl Acetate	10	U	10	1	NA	8/23/11 20:10		258589	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	8/18/11
Sample Matrix:	Water	**Date Received:**	8/19/11
Sample Name:	LC34-TB-20110818	**Units:**	µg/L
Lab Code:	R1104645-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Methylcyclohexane	10	U	10	1	NA	8/23/11 20:10		258589	
Styrene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Tetrachloroethene (PCE)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Toluene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Trichloroethene (TCE)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
Vinyl Chloride	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
cis-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
cis-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
m,p-Xylenes	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
n-Butyl Acetate	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
o-Xylene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
trans-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	
trans-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/23/11 20:10		258589	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	8/23/11 20:10	
Dibromofluoromethane	103	89-119	8/23/11 20:10	
Toluene-d8	104	87-121	8/23/11 20:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104645-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	8/31/11 11:30	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/19/11 13:07	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	8/29/11 17:29	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	8/19/11 13:07	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	9/1/11 13:38	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/19/11 13:07	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/19/11 13:07	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	8/19/11 13:07	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	8/22/11 12:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104645-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/24/11	9/8/11 13:13	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/24/11	9/8/11 13:13	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/24/11	8/30/11 23:55	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104645-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	8/24/11	9/8/11 13:19	
Iron, Dissolved	6010C	100	U	µg/L	100	1	8/24/11	9/8/11 13:19	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	8/24/11	8/31/11 00:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108268-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,1,2-Trichloroethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,2,4-Trichlorobenzene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,2-Dibromoethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,2-Dichlorobenzene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,2-Dichloroethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,2-Dichloropropane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,3-Dichlorobenzene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
1,4-Dichlorobenzene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
n-Butanol	250	U	250	1	NA	8/23/11 12:37		258589	
2-Butanone (MEK)	10	U	10	1	NA	8/23/11 12:37		258589	
2-Hexanone	10	U	10	1	NA	8/23/11 12:37		258589	
4-Methyl-2-pentanone	10	U	10	1	NA	8/23/11 12:37		258589	
Acetone	20	U	20	1	NA	8/23/11 12:37		258589	
Benzene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Bromodichloromethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Bromoform	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Bromomethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Carbon Disulfide	10	U	10	1	NA	8/23/11 12:37		258589	
Carbon Tetrachloride	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Chlorobenzene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Chloroethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Chloroform	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Chloromethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Cyclohexane	10	U	10	1	NA	8/23/11 12:37		258589	
Dibromochloromethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Dichloromethane	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Ethylbenzene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Isopropylbenzene (Cumene)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Methyl Acetate	10	U	10	1	NA	8/23/11 12:37		258589	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108268-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Methylcyclohexane	10	U	10	1	NA	8/23/11 12:37		258589	
Styrene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Tetrachloroethene (PCE)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Toluene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Trichloroethene (TCE)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
Vinyl Chloride	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
cis-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
cis-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
m,p-Xylenes	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
n-Butyl Acetate	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
o-Xylene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
trans-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	
trans-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/23/11 12:37		258589	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	8/23/11 12:37	
Dibromofluoromethane	105	89-119	8/23/11 12:37	
Toluene-d8	104	87-121	8/23/11 12:37	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108364-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,1,2-Trichloroethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,2,4-Trichlorobenzene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,2-Dibromoethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,2-Dichlorobenzene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,2-Dichloroethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,2-Dichloropropane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,3-Dichlorobenzene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
1,4-Dichlorobenzene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
n-Butanol	250	U	250	1	NA	8/24/11 15:17		258801	
2-Butanone (MEK)	10	U	10	1	NA	8/24/11 15:17		258801	
2-Hexanone	10	U	10	1	NA	8/24/11 15:17		258801	
4-Methyl-2-pentanone	10	U	10	1	NA	8/24/11 15:17		258801	
Acetone	20	U	20	1	NA	8/24/11 15:17		258801	
Benzene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Bromodichloromethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Bromoform	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Bromomethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Carbon Disulfide	10	U	10	1	NA	8/24/11 15:17		258801	
Carbon Tetrachloride	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Chlorobenzene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Chloroethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Chloroform	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Chloromethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Cyclohexane	10	U	10	1	NA	8/24/11 15:17		258801	
Dibromochloromethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Dichloromethane	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Ethylbenzene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Isopropylbenzene (Cumene)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Methyl Acetate	10	U	10	1	NA	8/24/11 15:17		258801	

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108364-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Methylcyclohexane	10	U	10	1	NA	8/24/11 15:17		258801	
Styrene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Tetrachloroethene (PCE)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Toluene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Trichloroethene (TCE)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
Vinyl Chloride	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
cis-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
cis-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
m,p-Xylenes	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
n-Butyl Acetate	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
o-Xylene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
trans-1,2-Dichloroethene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	
trans-1,3-Dichloropropene	5.0	U	5.0	1	NA	8/24/11 15:17		258801	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	8/24/11 15:17	
Dibromofluoromethane	105	89-119	8/24/11 15:17	
Toluene-d8	104	87-121	8/24/11 15:17	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/31/11 09:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108595-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	259661
Data File Name:	star016.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/24/11 17:33
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1109006-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	258928
Data File Name:	J:\ACQUDATA\HPLC05\DATA\082411\X0006247.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Collected: 8/18/11
Date Received: 8/19/11
Date Analyzed: 8/19/11 - 8/29/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-RW0007-038.5-20110818
Lab Code: R1104645-001

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	Sample Result	LC34-RW0007-038.5 -20110818DUP Duplicate Sample R1104645-001DUP Result	Average	RPD	RPD Limit
Bromide	300.0	1.0	25.6	25.2	25.4	2	20
Nitrate as Nitrogen	300.0	1.0	1.0 U	1.0 U	NC	NC	20
Sulfate	300.0	2.0	2.0 U	2.0 U	NC	NC	20
Carbon, Total Organic (TOC), Average	9060A	50	363	358	360	1	20

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Collected: 8/18/11
Date Received: 8/19/11
Date Analyzed: 8/19/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-RW0007-038.5-20110818
Lab Code: R1104645-001

Units: mg/L
Basis: NA

Analytical Method: 300.0

LC34-RW0007-038.5-20110818
MS
Matrix Spike
R1104645-001MS1

Analyte Name	Sample Result	Spike Result	Spike Amount	% Rec		% Rec Limits
Bromide	25.6	32.9	10.0	72	*	90 - 110
Nitrate as Nitrogen	ND	9.62	10.0	96		90 - 110
Sulfate	ND	22.6	20.0	113	*	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Collected: 8/18/11
Date Received: 8/19/11
Date Analyzed: 8/29/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-RW0008-052.0-20110818
Lab Code: R1104645-003

Units: mg/L
Basis: NA

Analytical Method: 9060A

LC34-RW0008-052.0-20110818
MS
Matrix Spike
R1104645-003MS2

Analyte Name	Sample Result	Spike Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	177	374	200	99	62 - 135

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Collected: 8/18/11
Date Received: 8/19/11
Date Analyzed: 8/24/11 - 8/25/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-RW0008-052.0-20110818
Lab Code: R1104645-003

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-RW0008-052.0-20110818 MS Matrix Spike RQ1108364-05			LC34-RW0008-052.0-20110818 DMS Duplicate Matrix Spike RQ1108364-06					
Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane (TCA)	ND	510	500	102	517	500	103	76 - 142	2	30
1,1,2,2-Tetrachloroethane	ND	511	500	102	515	500	103	71 - 120	<1	30
1,1,2-Trichloroethane	ND	524	500	105	535	500	107	80 - 119	2	30
1,1,2-Trichloro-1,2,2-trifluoroethane	580	1010	500	85	938	500	71	65 - 154	7	30
1,1-Dichloroethane (1,1-DCA)	ND	514	500	103	531	500	106	79 - 134	3	30
1,1-Dichloroethene (1,1-DCE)	ND	469	500	94	488	500	98	71 - 143	4	30
1,2,4-Trichlorobenzene	ND	472	500	94	494	500	99	75 - 118	4	30
1,2-Dibromo-3-chloropropane (DBC	ND	489	500	98	513	500	103	60 - 125	5	30
1,2-Dibromoethane	ND	523	500	105	540	500	108	78 - 119	3	30
1,2-Dichlorobenzene	ND	482	500	96	490	500	98	82 - 117	2	30
1,2-Dichloroethane	ND	548	500	110	548	500	110	73 - 133	<1	30
1,2-Dichloropropane	ND	525	500	105	534	500	107	84 - 124	2	30
1,3-Dichlorobenzene	ND	468	500	94	473	500	95	82 - 117	1	30
1,4-Dichlorobenzene	ND	465	500	93	468	500	94	81 - 116	<1	30
n-Butanol	9300	39400	25000	121	41000	25000	127	50 - 150	4	30
2-Butanone (MEK)	ND	558	500	112	560	500	112	54 - 130	<1	30
2-Hexanone	ND	518	500	104	537	500	107	55 - 125	4	30
4-Methyl-2-pentanone	ND	547	500	109	544	500	109	59 - 131	<1	30
Acetone	ND	601	500	120	451	500	90	37 - 152	29	30
Benzene	ND	483	500	97	497	500	99	81 - 124	3	30
Bromodichloromethane	ND	548	500	110	552	500	110	81 - 126	<1	30
Bromoform	ND	503	500	101	511	500	102	61 - 126	2	30
Bromomethane	ND	170	500	34 *	179	500	36 *	45 - 154	5	30
Carbon Disulfide	ND	589	500	118	551	500	110	32 - 149	7	30
Carbon Tetrachloride	ND	518	500	104	516	500	103	71 - 146	<1	30
Chlorobenzene	ND	487	500	97	493	500	99	80 - 125	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Collected: 8/18/11
Date Received: 8/19/11
Date Analyzed: 8/24/11 - 8/25/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-RW0008-052.0-20110818
Lab Code: R1104645-003

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-RW0008-052.0-20110818 MS Matrix Spike RQ1108364-05				LC34-RW0008-052.0-20110818 DMS Duplicate Matrix Spike RQ1108364-06					
Analyte Name	Sample Result	Result	Spike Amount	% Rec		Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
Chloroethane	ND	615	500	123		593	500	119		68 - 148	4	30
Chloroform	ND	544	500	109		545	500	109		81 - 131	<1	30
Chloromethane	ND	499	500	100		523	500	105		61 - 151	5	30
Cyclohexane	ND	554	500	111		494	500	99		59 - 144	12	30
Dibromochloromethane	ND	533	500	107		550	500	110		74 - 130	3	30
Dichlorodifluoromethane (CFC 12)	ND	495	500	99		477	500	95		44 - 175	4	30
Dichloromethane	ND	503	500	101		519	500	104		78 - 125	3	30
Ethylbenzene	ND	512	500	102		526	500	105		84 - 127	3	30
Isopropylbenzene (Cumene)	ND	571	500	114		583	500	117		82 - 140	2	30
Methyl Acetate	ND	849	500	170	*	840	500	168	*	38 - 156	1	30
Methyl tert-Butyl Ether	ND	509	500	102		533	500	107		75 - 126	5	30
Methylcyclohexane	ND	558	500	112		501	500	100		63 - 141	11	30
Styrene	ND	529	500	106		551	500	110		43 - 146	4	30
Tetrachloroethene (PCE)	ND	468	500	94		487	500	97		66 - 142	4	30
Toluene	ND	502	500	100		508	500	102		81 - 125	1	30
Trichloroethene (TCE)	1700	2240	500	116		2120	500	93		71 - 133	5	30
Trichlorofluoromethane (CFC 11)	ND	571	500	114		549	500	110		71 - 159	4	30
Vinyl Chloride	94	626	500	106		656	500	112		72 - 154	5	30
cis-1,2-Dichloroethene	890	1500	500	122		1450	500	112		72 - 137	3	30
cis-1,3-Dichloropropene	ND	428	500	86		441	500	88		71 - 120	3	30
m,p-Xylenes	ND	1050	1000	105		1070	1000	107		80 - 129	2	30
n-Butyl Acetate	ND	108	500	22		103	500	21		18 - 159	5	30
o-Xylene	ND	530	500	106		545	500	109		80 - 126	3	30
trans-1,2-Dichloroethene	ND	512	500	102		516	500	103		77 - 130	<1	30
trans-1,3-Dichloropropene	ND	454	500	91		464	500	93		67 - 122	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Analyzed:**	8/22/11
Sample Matrix:	Water		

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1104645-LCS1			Duplicate Lab Control Sample R1104645-DLCS1					
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfide, Total	SM 4500-S2- F	6.32	5.9	107	6.20	5.9	105	56 - 138	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Analyzed: 8/19/11 - 9/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104645-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.04	1.00	104	90 - 110
Chloride	300.0	2.11	2.00	105	90 - 110
Iodide	300.0	0.971	1.00	97	90 - 110
Nitrate as Nitrogen	300.0	1.09	1.00	109	90 - 110
Sulfate	300.0	2.19	2.00	110	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	20.0	20.0	100	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.1	10.0	101	86 - 117
Nitrite as Nitrogen	300.0	1.02	1.00	102	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104645
Project:	ESTCP PED LC34 TR0272	**Date Analyzed:**	8/31/11 - 9/ 8/11
Sample Matrix:	Water		

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

		Lab Control Sample R1104645-LCS			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Arsenic, Dissolved	6010C	36.7	40	92	80 - 120
Iron, Dissolved	6010C	948	1000	95	80 - 120
Manganese, Dissolved	6010C	505	500	101	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Analyzed: 8/23/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 258589

Lab Control Sample
RQ1108268-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.7	20.0	99	72 - 128
1,1,2,2-Tetrachloroethane	18.8	20.0	94	72 - 131
1,1,2-Trichloroethane	18.9	20.0	95	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	20.0	100	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.8	20.0	99	76 - 124
1,1-Dichloroethene (1,1-DCE)	19.1	20.0	95	72 - 129
1,2,4-Trichlorobenzene	19.4	20.0	97	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.7	20.0	84	62 - 131
1,2-Dibromoethane	19.3	20.0	97	78 - 125
1,2-Dichlorobenzene	19.6	20.0	98	79 - 124
1,2-Dichloroethane	20.2	20.0	101	73 - 127
1,2-Dichloropropane	19.9	20.0	99	80 - 123
1,3-Dichlorobenzene	19.6	20.0	98	78 - 124
1,4-Dichlorobenzene	19.1	20.0	96	78 - 123
n-Butanol	958	1000	96	70 - 130
2-Butanone (MEK)	18.4	20.0	92	60 - 133
2-Hexanone	16.5	20.0	83	61 - 131
4-Methyl-2-pentanone	17.4	20.0	87	61 - 132
Acetone	19.1	20.0	95	54 - 139
Benzene	19.0	20.0	95	78 - 121
Bromodichloromethane	20.3	20.0	102	80 - 125
Bromoform	19.3	20.0	97	68 - 130
Bromomethane	22.8	20.0	114	57 - 144
Carbon Disulfide	23.4	20.0	117	52 - 140
Carbon Tetrachloride	20.4	20.0	102	68 - 133
Chlorobenzene	19.5	20.0	98	80 - 121
Chloroethane	22.0	20.0	110	71 - 130
Chloroform	20.7	20.0	104	78 - 125
Chloromethane	20.5	20.0	103	61 - 138
Cyclohexane	19.2	20.0	96	57 - 126
Dibromochloromethane	20.1	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	20.1	20.0	100	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Analyzed: 8/23/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 258589

Analyte Name	Lab Control Sample RQ1108268-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.4	20.0	97	75 - 125
Ethylbenzene	20.1	20.0	100	78 - 123
Isopropylbenzene (Cumene)	22.5	20.0	112	73 - 133
Methyl Acetate	19.8	20.0	99	57 - 157
Methyl tert-Butyl Ether	18.7	20.0	93	75 - 126
Methylcyclohexane	19.9	20.0	100	61 - 125
Styrene	21.3	20.0	107	80 - 132
Tetrachloroethene (PCE)	19.4	20.0	97	72 - 131
Toluene	19.4	20.0	97	78 - 122
Trichloroethene (TCE)	19.2	20.0	96	74 - 127
Trichlorofluoromethane (CFC 11)	22.2	20.0	111	69 - 141
Vinyl Chloride	22.1	20.0	111	72 - 138
cis-1,2-Dichloroethene	19.8	20.0	99	78 - 122
cis-1,3-Dichloropropene	18.6	20.0	93	77 - 125
m,p-Xylenes	41.8	40.0	105	79 - 126
n-Butyl Acetate	15.7	20.0	78	31 - 144
o-Xylene	20.2	20.0	101	77 - 118
trans-1,2-Dichloroethene	19.5	20.0	98	75 - 121
trans-1,3-Dichloropropene	18.6	20.0	93	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Analyzed: 8/24/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 258801

Analyte Name	Lab Control Sample RQ1108364-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.2	20.0	91	72 - 128
1,1,2,2-Tetrachloroethane	17.3	20.0	86	72 - 131
1,1,2-Trichloroethane	17.5	20.0	88	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.3	20.0	92	68 - 136
1,1-Dichloroethane (1,1-DCA)	18.4	20.0	92	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.3	20.0	87	72 - 129
1,2,4-Trichlorobenzene	17.3	20.0	86	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	15.0	20.0	75	62 - 131
1,2-Dibromoethane	17.9	20.0	89	78 - 125
1,2-Dichlorobenzene	17.7	20.0	89	79 - 124
1,2-Dichloroethane	18.8	20.0	94	73 - 127
1,2-Dichloropropane	18.3	20.0	92	80 - 123
1,3-Dichlorobenzene	17.3	20.0	87	78 - 124
1,4-Dichlorobenzene	17.1	20.0	86	78 - 123
n-Butanol	999	1000	100	70 - 130
2-Butanone (MEK)	19.5	20.0	98	60 - 133
2-Hexanone	16.8	20.0	84	61 - 131
4-Methyl-2-pentanone	17.9	20.0	89	61 - 132
Acetone	18.8	20.0	94	54 - 139
Benzene	17.4	20.0	87	78 - 121
Bromodichloromethane	18.7	20.0	93	80 - 125
Bromoform	17.0	20.0	85	68 - 130
Bromomethane	20.1	20.0	100	57 - 144
Carbon Disulfide	22.0	20.0	110	52 - 140
Carbon Tetrachloride	18.4	20.0	92	68 - 133
Chlorobenzene	17.7	20.0	89	80 - 121
Chloroethane	20.0	20.0	100	71 - 130
Chloroform	18.9	20.0	94	78 - 125
Chloromethane	18.6	20.0	93	61 - 138
Cyclohexane	21.2	20.0	106	57 - 126
Dibromochloromethane	18.3	20.0	92	78 - 133
Dichlorodifluoromethane (CFC 12)	18.1	20.0	90	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Analyzed: 8/24/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 258801

Analyte Name	Lab Control Sample RQ1108364-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.0	20.0	90	75 - 125
Ethylbenzene	18.2	20.0	91	78 - 123
Isopropylbenzene (Cumene)	19.9	20.0	99	73 - 133
Methyl Acetate	21.2	20.0	106	57 - 157
Methyl tert-Butyl Ether	17.1	20.0	85	75 - 126
Methylcyclohexane	21.6	20.0	108	61 - 125
Styrene	19.3	20.0	97	80 - 132
Tetrachloroethene (PCE)	17.6	20.0	88	72 - 131
Toluene	17.8	20.0	89	78 - 122
Trichloroethene (TCE)	17.7	20.0	89	74 - 127
Trichlorofluoromethane (CFC 11)	20.1	20.0	100	69 - 141
Vinyl Chloride	20.3	20.0	101	72 - 138
cis-1,2-Dichloroethene	18.4	20.0	92	78 - 122
cis-1,3-Dichloropropene	17.2	20.0	86	77 - 125
m,p-Xylenes	38.1	40.0	95	79 - 126
n-Butyl Acetate	17.7	20.0	88	31 - 144
o-Xylene	18.3	20.0	92	77 - 118
trans-1,2-Dichloroethene	18.2	20.0	91	75 - 121
trans-1,3-Dichloropropene	16.8	20.0	84	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Analyzed: 8/31/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 259661

	Lab Control Sample RQ1108595-02			Duplicate Lab Control Sample RQ1108595-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	28.9	26.1	111	27.1	26.1	104	56 - 148	7	30
Ethene	25.0	24.3	103	23.4	24.3	96	58 - 155	7	30
Methane	28.9	26.2	110	27.0	26.2	103	55 - 150	7	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272
Sample Matrix: Water

Service Request: R1104645
Date Analyzed: 8/24/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 258928

	Lab Control Sample RQ1109006-02			Duplicate Lab Control Sample RQ1109006-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.18	1.00	118	1.14	1.00	114	70 - 130	3	30
Acetic Acid	9.79	10.0	98	9.67	10.0	97	70 - 135	1	30
Butanoic Acid (Butyric Acid)	10.5	10.0	105	9.76	10.0	98	78 - 113	7	30
Lactic Acid	9.37	9.97	94	9.34	9.97	94	61 - 109	<1	30
Propionic Acid	9.59	9.97	96	9.42	9.97	95	80 - 125	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20110818	08/18/11	1018	-001 -002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20110818	08/18/11	1105	-003 -004	W	15	3	2	1	3	1	3	1	1		
LC34-TB-20110818	08/18/11	NA	-005	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1104645
GeoSyntec Consultants
ESTCP PED LC34 TR0272

RELINQUISHED BY:

Signature:

Printed Name: Joseph Bartlett

Firm: GeoSyntec

Date/Time: 08/18/11 – 1630

RECEIVED BY:

Signature:

Printed Name: FedEx

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LaFore

Firm: CAS

Date/Time: 8/19/11 0944

Cooler Receipt And Preservation Check Form

Project/Client Accuvatec Folder Number R1104645

Cooler received on 8/19/11 by: (JD) **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC),	CLIENT			
7.	Temperature of cooler(s) upon receipt:	3.3°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 8/19/11 0955

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 8/19/11

Cooler Breakdown: Date: 8/19/11 Time: 1315 by: (JD)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	(NO)
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH			?	
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-	?	
	HCl	*	*	4110060	7/12

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 072511-2DD, 1-087-002, 4110060 1-045-004

Other Comments:

Sulfide bottle received w/ no indication of preservation w NaOH or/and Zn Acetate. - Can see NaOH preservation pellets in bottom of 500 bottle, assumed OK.

* - Please have WC analyst W after analysis

PC Secondary Review: KB 9/2/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

00044

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

September 14, 2011 Service Request No: R1104782

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 #TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on August 26, 2011. For your reference, these analyses have been assigned our service request number **R1104782**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1104782
Project:	ESTCP PED LC34/ TR0272 8/24/11	**Date Received:**	8/26/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Three (3) water samples including one (1) Trip Blank were collected by the client on 8/24/11 and were received for analysis at Columbia Analytical Services on 8/26/11 via a national courier The samples were received at a cooler temperature of 4.8°C within the guidelines of 0-6°C. Only 1 vial was received for the RSK-175. The analysis was not affected.

Organic Compounds

Three (3) water samples including one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) samples were also analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples for 8260C except for the CCV for the compound Dichlorodifluoromethane which was >20%D (22.3%) on the 8/29/11 analytical run. Any hits for this compound associated with this run should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Site specific QC is included in the report for location LC34-RW0007-038.5-20110824 (CAS #R1104782-001) for Organic Acids. All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within limits. All Relative Percent Difference (RPD) calculations were acceptable. The compounds Acetic and Butyric Acids were spiked too low (<4X the concentration in the sample) to be accurately determined. The recoveries for these compounds are flagged as "#". The Laboratory Control Samples (LCS) and LCS Duplicate recoveries were all within QC limits.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

Hits between the Method Reporting Limit (MRL) and Minimum Detection Limit (MDL) are flagged as estimated, "J".

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

The Laboratory Method Blanks were free from contamination.

The Primary Standard mix for RSK expired on 8/6/11. The Secondary Standard mix expired on 8/9/11. Both standards have shown little to no degradation over the past year. New standards have been ordered but not yet received.

No other analytical or QC problems were encountered.

Approved by Karen Burcher **Date** 9/14/11

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Sulfate and Nitrite and Nitrate by IC method 300.0, The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Site QC is included in the report for metals for location LC34-RW0007-038.5-20110824 (CAS #R1104782-002). All Matrix Spike (MS) recoveries were within QC acceptance limits. All Relative Percent Difference (RPD) calculations were acceptable. All Laboratory Control Sample (LCS) recoveries were within QC limits.

All holding times were met for these analyses for all analyses except for Nitrate and Nitrite which were received within approximately 1-2 hours of holding time. The samples were analyzed as soon as possible upon receipt. The data has been flagged as "*' for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analyses of these samples.

Approved by Karen Burchett **Date** 9/14/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1104782

Lab ID	Client ID
R1104782-001	LC34-RW0007-038.5-20110824
R1104782-002	LC34-RW0007-038.5-20110824 Dissolved
R1104782-003	LC34-RW0008-052.0-20110824
R1104782-004	LC34-RW0008-052.0-20110824 Dissolved
R1104782-005	Trip Blank

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1108
Sample Matrix:	Water	**Date Received:**	8/26/11
Sample Name:	LC34-RW0007-038.5-20110824		
Lab Code:	R1104782-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**498**		mg/L	2.0	1	NA	8/31/11 11:30	
Bromide	300.0	**20.2**		mg/L	1.0	10	NA	8/26/11 19:30	
Carbon, Total Organic (TOC), Average	9060A	**322**		mg/L	30	30	NA	9/2/11 19:01	
Chloride	300.0	**516**		mg/L	20	100	NA	8/26/11 19:57	
Iodide	300.0	**10.8**		mg/L	2.0	10	NA	9/1/11 14:20	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/26/11 19:30	*
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/26/11 19:57	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/26/11 19:30	
Sulfide, Total	SM 4500-S2- F	**24.5**		mg/L	1.0	1	NA	8/30/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1108
Sample Matrix:	Water	**Date Received:**	8/26/11
Sample Name:	LC34-RW0007-038.5-20110824 Dissolved		
Lab Code:	R1104782-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 1/11	9/9/11 17:18	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/ 1/11	9/8/11 22:31	
Manganese, Dissolved	6010C	**25**		µg/L	10	1	9/ 1/11	9/8/11 22:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1108
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/30/11 16:05
Sample Name:	LC34-RW0007-038.5-20110824	**Units:**	µg/L
Lab Code:	R1104782-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259593
Data File Name:	J:\ACQUDATA\msvoa10\data\083011\D4459.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	46	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	40	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	46	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**13000**		1000	62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1000	U	1000	58	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	52	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	
106-93-4	1,2-Dibromoethane	1000	U	1000	40	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	40	
107-06-2	1,2-Dichloroethane	1000	U	1000	40	
78-87-5	1,2-Dichloropropane	1000	U	1000	57	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	40	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	40	
71-36-3	n-Butanol	**26000**	J	50000	2100	
78-93-3	2-Butanone (MEK)	2000	U	2000	110	
591-78-6	2-Hexanone	2000	U	2000	70	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	54	
67-64-1	Acetone	4000	U	4000	200	
71-43-2	Benzene	1000	U	1000	42	
75-27-4	Bromodichloromethane	1000	U	1000	40	
75-25-2	Bromoform	1000	U	1000	54	
74-83-9	Bromomethane	1000	U	1000	62	
75-15-0	Carbon Disulfide	2000	U	2000	40	
56-23-5	Carbon Tetrachloride	1000	U	1000	54	
108-90-7	Chlorobenzene	1000	U	1000	40	
75-00-3	Chloroethane	1000	U	1000	62	
67-66-3	Chloroform	1000	U	1000	44	
74-87-3	Chloromethane	1000	U	1000	48	
110-82-7	Cyclohexane	2000	U	2000	48	
124-48-1	Dibromochloromethane	1000	U	1000	40	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	120	
75-09-2	Dichloromethane	1000	U	1000	44	
100-41-4	Ethylbenzene	1000	U	1000	40	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1108
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/30/11 16:05
Sample Name:	LC34-RW0007-038.5-20110824	**Units:**	µg/L
Lab Code:	R1104782-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259593
Data File Name:	J:\ACQUDATA\msvoa10\data\083011\D4459.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	40	
79-20-9	Methyl Acetate	2000	U	2000	46	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	40	
108-87-2	Methylcyclohexane	2000	U	2000	50	
100-42-5	Styrene	1000	U	1000	40	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	40	
108-88-3	Toluene	1000	U	1000	40	
79-01-6	Trichloroethene (TCE)	**10000**		1000	46	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	40	
75-01-4	Vinyl Chloride	**1700**		1000	46	
156-59-2	cis-1,2-Dichloroethene	**21000**		1000	40	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	40	
179601-23-1	m,p-Xylenes	1000	U	1000	40	
123-86-4	n-Butyl Acetate	1000	U	1000	42	
95-47-6	o-Xylene	1000	U	1000	40	
156-60-5	trans-1,2-Dichloroethene	**130**	J	1000	40	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	8/30/11 16:05	
Dibromofluoromethane	107	89-119	8/30/11 16:05	
Toluene-d8	106	87-121	8/30/11 16:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1108
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	9/2/11 10:51
Sample Name:	LC34-RW0007-038.5-20110824	**Units:**	µg/L
Lab Code:	R1104782-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	260455
Data File Name:	star088.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**50**		1.0	
74-85-1	Ethene	**12**		1.0	
74-82-8	Methane	**100**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1108
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/31/11 11:25
Sample Name:	LC34-RW0007-038.5-20110824	**Units:**	mg/L
Lab Code:	R1104782-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	259784
Data File Name:	J:\ACQUDATA\HPLC05\DATA\083111\X0006291.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**320**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**350**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**18**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1150
Sample Matrix:	Water	**Date Received:**	8/26/11
Sample Name:	LC34-RW0008-052.0-20110824		
Lab Code:	R1104782-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**368**		mg/L	2.0	1	NA	8/31/11 11:30	
Bromide	300.0	**8.2**		mg/L	1.0	10	NA	8/26/11 20:10	
Carbon, Total Organic (TOC), Average	9060A	**147**		mg/L	30	30	NA	9/2/11 19:41	
Chloride	300.0	**604**		mg/L	20	100	NA	8/26/11 20:36	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	9/1/11 14:28	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	8/26/11 20:10	*
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	8/26/11 20:36	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	8/26/11 20:10	
Sulfide, Total	SM 4500-S2- F	**19.7**		mg/L	1.0	1	NA	8/30/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1150
Sample Matrix:	Water	**Date Received:**	8/26/11
Sample Name:	LC34-RW0008-052.0-20110824 Dissolved		
Lab Code:	R1104782-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 1/11	9/9/11 17:58	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/ 1/11	9/8/11 23:02	
Manganese, Dissolved	6010C	**22**		µg/L	10	1	9/ 1/11	9/8/11 23:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1150
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/29/11 18:38
Sample Name:	LC34-RW0008-052.0-20110824	**Units:**	µg/L
Lab Code:	R1104782-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259408
Data File Name:	J:\ACQUDATA\msvoa10\data\082911\D4438.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**580**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**4.3**	J	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	**18**	J	200	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1150
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/29/11 18:38
Sample Name:	LC34-RW0008-052.0-20110824	**Units:**	µg/L
Lab Code:	R1104782-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259408
Data File Name:	J:\ACQUDATA\msvoa10\data\082911\D4438.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**1500**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**160**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**830**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**3.9**	J	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	8/29/11 18:38	
Dibromofluoromethane	110	89-119	8/29/11 18:38	
Toluene-d8	108	87-121	8/29/11 18:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1150
Sample Matrix:	Water	**Date Received:**	8/26/11
Sample Name:	LC34-RW0008-052.0-20110824	**Units:**	µg/L
Lab Code:	R1104782-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**4.3**		2.0	2	NA	9/2/11 11:19		260455	
Ethene	**9.3**		2.0	2	NA	9/2/11 11:19		260455	
Methane	**370**	D	10	5	NA	9/2/11 11:32		260455	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11 1150
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/30/11 16:18
Sample Name:	LC34-RW0008-052.0-20110824	**Units:**	mg/L
Lab Code:	R1104782-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	259784
Data File Name:	J:\ACQUDATA\HPLC05\DATA\083011\X0006277.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**220**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**100**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**15**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/29/11 19:08
Sample Name:	Trip Blank	**Units:**	µg/L
Lab Code:	R1104782-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259408
Data File Name:	J:\ACQUDATA\msvoa10\data\082911\D4439.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.21**	J	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/29/11 19:08
Sample Name:	Trip Blank	**Units:**	µg/L
Lab Code:	R1104782-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259408
Data File Name:	J:\ACQUDATA\msvoa10\data\082911\D4439.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	111	85-122	8/29/11 19:08	
Dibromofluoromethane	108	89-119	8/29/11 19:08	
Toluene-d8	108	87-121	8/29/11 19:08	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104782-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	8/31/11 11:30	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	8/26/11 18:00	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	9/2/11 13:53	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	8/26/11 18:00	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	9/1/11 13:38	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/26/11 18:00	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	8/26/11 18:00	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	8/26/11 18:00	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	8/30/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104782-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	8/30/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104782-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 1/11	9/9/11 17:01	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/ 1/11	9/8/11 22:10	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	9/ 1/11	9/8/11 22:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104782-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 1/11	9/9/11 17:07	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/ 1/11	9/8/11 22:17	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	9/ 1/11	9/8/11 22:17	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/29/11 13:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108651-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259408
Data File Name:	J:\ACQUDATA\msvoa10\data\082911\D4427.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/29/11 13:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108651-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259408
Data File Name:	J:\ACQUDATA\msvoa10\data\082911\D4427.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	8/29/11 13:10	
Dibromofluoromethane	104	89-119	8/29/11 13:10	
Toluene-d8	106	87-121	8/29/11 13:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/30/11 12:36
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108621-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259593
Data File Name:	J:\ACQUDATA\msvoa10\data\083011\D4452.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/30/11 12:36
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108621-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	259593
Data File Name:	J:\ACQUDATA\msvoa10\data\083011\D4452.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	8/30/11 12:36	
Dibromofluoromethane	106	89-119	8/30/11 12:36	
Toluene-d8	104	87-121	8/30/11 12:36	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/2/11 09:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108845-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	260455
Data File Name:	star083.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/30/11 13:23
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1108668-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	259784
Data File Name:	J:\ACQUDATA\HPLC05\DATA\083011\X0006274.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Collected: 8/24/11
Date Received: 8/26/11
Date Analyzed: 9/ 8/11 - 9/ 9/11

Replicate Sample Summary
Inorganic Parameters

Sample Name: LC34-RW0007-038.5-20110824 Dissolved
Lab Code: R1104782-002

Units: µg/L
Basis: NA

Analyte Name	Method	MRL	Sample Result	LC34-RW0007-038.5 -20110824 DissolvedDUP Duplicate Sample R1104782-002DUP Result	Average	RPD	RPD Limit
Arsenic, Dissolved	6010C	10	10 U	10 U	NC	NC	20
Iron, Dissolved	6010C	100	100 U	100 U	NC	NC	20
Manganese, Dissolved	6010C	10	25	25	25.2	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	9/ 8/11 - 9/ 9/11

Matrix Spike Summary
Inorganic Parameters

Sample Name: LC34-RW0007-038.5-20110824 Dissolved
Lab Code: R1104782-002

Units: µg/L
Basis: NA

Analytical Method: 6010C
Prep Method: EPA 3010A

LC34-RW0007-038.5-20110824
DissolvedMS
Matrix Spike
R1104782-002MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	ND	38.5	40	96	75 - 125
Iron, Dissolved	ND	934	1000	93	75 - 125
Manganese, Dissolved	25	497	500	94	75 - 125

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Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104782
Project:	ESTCP PED LC34 #TR0272	**Date Collected:**	8/24/11
Sample Matrix:	Water	**Date Received:**	8/26/11
		Date Analyzed:	8/31/11

Matrix Spike Summary

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	LC34-RW0007-038.5-20110824	**Units:**	mg/L
Lab Code:	R1104782-001	**Basis:**	NA

Analytical Method: Organic Acids

		LC34-RW0007-038.5-20110824 MS Matrix Spike RQ1108668-04			LC34-RW0007-038.5-20110824 DMS Duplicate Matrix Spike RQ1108668-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND	5.55	5.00	111	5.50	5.00	110	25 - 152	<1	30
Acetic Acid	320	363	50.0	86 #	366	50.0	92 #	13 - 167	<1	30
Butanoic Acid (Butyric Acid)	350	396	50.0	98 #	398	50.0	102 #	49 - 145	<1	30
Lactic Acid	ND	47.9	49.9	96	48.7	49.9	98	27 - 127	2	30
Propionic Acid	18	66.5	49.8	97	65.1	49.8	95	68 - 133	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/30/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104782-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1104782-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.73	5.7	101	5.88	5.7	104	56 - 138	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/30/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104782-LCS2 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1104782-DLCS2 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.77	5.9	98	5.89	5.9	100	56 - 138	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/26/11 - 9/ 2/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104782-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.03	1.00	103	90 - 110
Chloride	300.0	2.02	2.00	101	90 - 110
Iodide	300.0	0.971	1.00	97	90 - 110
Nitrate as Nitrogen	300.0	0.992	1.00	99	90 - 110
Sulfate	300.0	2.01	2.00	101	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	21.0	20.0	105	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.1	10.0	101	86 - 117
Nitrite as Nitrogen	300.0	0.997	1.00	100	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 9/ 8/11 - 9/ 9/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Lab Control Sample
R1104782-LCS

Analyte Name	Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	35.3	40	88	80 - 120
Iron, Dissolved	6010C	971	1000	97	80 - 120
Manganese, Dissolved	6010C	488	500	98	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 259408

	Lab Control Sample RQ1108651-02			Duplicate Lab Control Sample RQ1108651-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	21.5	20.0	108	17.7	20.0	89	72 - 128	19	30
1,1,2,2-Tetrachloroethane	19.0	20.0	95	16.9	20.0	84	72 - 131	12	30
1,1,2-Trichloroethane	21.5	20.0	107	18.5	20.0	93	80 - 122	15	30
1,1,2-Trichloro-1,2,2-trifluoroethane	21.9	20.0	109	17.5	20.0	88	68 - 136	22	30
1,1-Dichloroethane (1,1-DCA)	22.3	20.0	111	19.0	20.0	95	76 - 124	16	30
1,1-Dichloroethene (1,1-DCE)	20.8	20.0	104	17.2	20.0	86	72 - 129	19	30
1,2,4-Trichlorobenzene	18.9	20.0	94	15.1	20.0	76	70 - 133	22	30
1,2-Dibromo-3-chloropropane (DBCP)	18.2	20.0	91	14.6	20.0	73	62 - 131	22	30
1,2-Dibromoethane	20.2	20.0	101	17.9	20.0	89	78 - 125	12	30
1,2-Dichlorobenzene	19.0	20.0	95	16.4	20.0	82	79 - 124	15	30
1,2-Dichloroethane	22.3	20.0	111	19.3	20.0	96	73 - 127	14	30
1,2-Dichloropropane	21.9	20.0	109	18.8	20.0	94	80 - 123	15	30
1,3-Dichlorobenzene	18.3	20.0	92	15.7	20.0	79	78 - 124	15	30
1,4-Dichlorobenzene	18.4	20.0	92	15.6	20.0	78	78 - 123	17	30
n-Butanol	1110	1000	111	986	1000	99	70 - 130	12	30
2-Butanone (MEK)	20.8	20.0	104	19.6	20.0	98	60 - 133	6	30
2-Hexanone	15.8	20.0	79	16.1	20.0	80	61 - 131	1	30
4-Methyl-2-pentanone	18.0	20.0	90	18.1	20.0	90	61 - 132	<1	30
Acetone	17.9	20.0	89	19.4	20.0	97	54 - 139	8	30
Benzene	20.6	20.0	103	17.3	20.0	87	78 - 121	17	30
Bromodichloromethane	22.4	20.0	112	19.2	20.0	96	80 - 125	15	30
Bromoform	20.6	20.0	103	18.1	20.0	90	68 - 130	13	30
Bromomethane	17.2	20.0	86	15.9	20.0	79	57 - 144	8	30
Carbon Disulfide	20.4	20.0	102	25.7	20.0	128	52 - 140	23	30
Carbon Tetrachloride	21.1	20.0	105	17.2	20.0	86	68 - 133	20	30
Chlorobenzene	19.3	20.0	96	16.4	20.0	82	80 - 121	16	30
Chloroethane	24.0	20.0	120	19.3	20.0	96	71 - 130	22	30
Chloroform	23.1	20.0	116	19.5	20.0	97	78 - 125	17	30
Chloromethane	21.7	20.0	108	17.9	20.0	89	61 - 138	19	30
Cyclohexane	21.5	20.0	108	21.2	20.0	106	57 - 126	2	30
Dibromochloromethane	20.7	20.0	104	17.7	20.0	88	78 - 133	16	30
Dichlorodifluoromethane (CFC 12)	21.4	20.0	107	17.2	20.0	86	45 - 159	22	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 259408

	Lab Control Sample RQ1108651-02			Duplicate Lab Control Sample RQ1108651-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Dichloromethane	22.4	20.0	112	19.1	20.0	96	75 - 125	16	30
Ethylbenzene	19.5	20.0	97	16.3	20.0	82	78 - 123	18	30
Isopropylbenzene (Cumene)	22.0	20.0	110	17.6	20.0	88	73 - 133	22	30
Methyl Acetate	23.1	20.0	115	22.4	20.0	112	57 - 157	3	30
Methyl tert-Butyl Ether	21.4	20.0	107	18.7	20.0	93	75 - 126	14	30
Methylcyclohexane	22.1	20.0	111	21.9	20.0	110	61 - 125	<1	30
Styrene	21.1	20.0	106	17.4	20.0	87	80 - 132	19	30
Tetrachloroethene (PCE)	19.0	20.0	95	15.9	20.0	79	72 - 131	18	30
Toluene	20.9	20.0	105	17.4	20.0	87	78 - 122	18	30
Trichloroethene (TCE)	20.4	20.0	102	17.2	20.0	86	74 - 127	17	30
Trichlorofluoromethane (CFC 11)	23.9	20.0	119	19.8	20.0	99	69 - 141	18	30
Vinyl Chloride	23.8	20.0	119	19.3	20.0	97	72 - 138	21	30
cis-1,2-Dichloroethene	22.4	20.0	112	18.9	20.0	94	78 - 122	17	30
cis-1,3-Dichloropropene	20.6	20.0	103	17.7	20.0	89	77 - 125	15	30
m,p-Xylenes	41.1	40.0	103	34.0	40.0	85	79 - 126	19	30
n-Butyl Acetate	17.1	20.0	86	16.4	20.0	82	31 - 144	4	30
o-Xylene	20.4	20.0	102	17.2	20.0	86	77 - 118	17	30
trans-1,2-Dichloroethene	21.9	20.0	110	18.1	20.0	91	75 - 121	19	30
trans-1,3-Dichloropropene	20.5	20.0	103	17.8	20.0	89	69 - 127	14	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/30/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 259593

Lab Control Sample
RQ1108621-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.9	20.0	90	72 - 128
1,1,2,2-Tetrachloroethane	19.6	20.0	98	72 - 131
1,1,2-Trichloroethane	18.8	20.0	94	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.2	20.0	91	68 - 136
1,1-Dichloroethane (1,1-DCA)	18.9	20.0	95	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.6	20.0	88	72 - 129
1,2,4-Trichlorobenzene	18.1	20.0	90	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84	62 - 131
1,2-Dibromoethane	19.6	20.0	98	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	20.0	20.0	100	73 - 127
1,2-Dichloropropane	19.6	20.0	98	80 - 123
1,3-Dichlorobenzene	18.4	20.0	92	78 - 124
1,4-Dichlorobenzene	18.2	20.0	91	78 - 123
n-Butanol	1040	1000	104	70 - 130
2-Butanone (MEK)	19.5	20.0	97	60 - 133
2-Hexanone	17.3	20.0	86	61 - 131
4-Methyl-2-pentanone	18.1	20.0	90	61 - 132
Acetone	16.9	20.0	85	54 - 139
Benzene	17.8	20.0	89	78 - 121
Bromodichloromethane	20.0	20.0	100	80 - 125
Bromoform	20.2	20.0	101	68 - 130
Bromomethane	16.6	20.0	83	57 - 144
Carbon Disulfide	23.0	20.0	115	52 - 140
Carbon Tetrachloride	18.1	20.0	91	68 - 133
Chlorobenzene	18.3	20.0	92	80 - 121
Chloroethane	20.4	20.0	102	71 - 130
Chloroform	19.8	20.0	99	78 - 125
Chloromethane	17.8	20.0	89	61 - 138
Cyclohexane	20.3	20.0	101	57 - 126
Dibromochloromethane	20.1	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	16.8	20.0	84	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/30/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 259593

Analyte Name	Lab Control Sample RQ1108621-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.1	20.0	96	75 - 125
Ethylbenzene	18.5	20.0	92	78 - 123
Isopropylbenzene (Cumene)	20.0	20.0	100	73 - 133
Methyl Acetate	21.0	20.0	105	57 - 157
Methyl tert-Butyl Ether	18.5	20.0	92	75 - 126
Methylcyclohexane	20.6	20.0	103	61 - 125
Styrene	19.8	20.0	99	80 - 132
Tetrachloroethene (PCE)	17.4	20.0	87	72 - 131
Toluene	18.0	20.0	90	78 - 122
Trichloroethene (TCE)	17.6	20.0	88	74 - 127
Trichlorofluoromethane (CFC 11)	19.8	20.0	99	69 - 141
Vinyl Chloride	19.8	20.0	99	72 - 138
cis-1,2-Dichloroethene	18.9	20.0	95	78 - 122
cis-1,3-Dichloropropene	18.1	20.0	91	77 - 125
m,p-Xylenes	38.3	40.0	96	79 - 126
n-Butyl Acetate	16.9	20.0	84	31 - 144
o-Xylene	19.0	20.0	95	77 - 118
trans-1,2-Dichloroethene	18.2	20.0	91	75 - 121
trans-1,3-Dichloropropene	17.8	20.0	89	69 - 127

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 9/ 2/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 260455

	Lab Control Sample RQ1108845-02			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Ethane	28.9	26.1	111	56 - 148
Ethene	24.7	24.3	101	58 - 155
Methane	28.0	26.2	107	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 #TR0272
Sample Matrix: Water

Service Request: R1104782
Date Analyzed: 8/30/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 259784

	Lab Control Sample RQ1108668-02			Duplicate Lab Control Sample RQ1108668-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.19	1.00	119	1.17	1.00	117	70 - 130	2	30
Acetic Acid	9.91	10.0	99	9.80	10.0	98	70 - 135	1	30
Butanoic Acid (Butyric Acid)	10.4	10.0	104	10.2	10.0	102	78 - 113	2	30
Lactic Acid	9.42	9.97	94	9.31	9.97	93	61 - 109	1	30
Propionic Acid	9.86	9.97	99	9.72	9.97	98	80 - 125	1	30

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Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-2011 0824	08/24/11	1108	001, 002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-2011 0824	08/24/11	1150	-003, 004	W	15	3	2	1	3	1	3	1	1		
LC34-TB-2011 0824	NA	NA	-005	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1104782
GeoSyntec Consultants
ESTCP PED LC34 #TR0272

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:

Signature:

Printed Name: Joseph Bartlett

Firm: GeoSyntec

Date/Time: 08/25/11 – 1630

RECEIVED BY:

Signature:

Printed Name: FedEx

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LaFave

Firm: CAS

Date/Time: 8/26/11 1010

Cooler Receipt And Preservation Check Form

Project/Client Synergetics Folder Number R1104782

Cooler received on 8/26/11 by: (JE) COURIER: CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)*	(NO) N/A
5.	Were **Ice** or **Ice packs** present?	(YES)	NO
6.	Where did the bottles originate?	(AS/ROC)	CLIENT

N/A YES

1 RSK-175 vial per each sample

7.	Temperature of cooler(s) upon receipt:	4.8°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 8/26/11 1025

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 8/26/11

Cooler Breakdown: Date: 8/26/11 Time: 1130 by: (JE)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO

4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC103098C	2/16				
≤2	HNO_3								
≤2	H_2SO_4			WC103138D	8/12				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC103098C	5/16				
	HCl	*	*	H11002O	7/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-087-002, 072511-220, 1-045-004,

Other Comments:

H_3PO_4 Lot# WC103104G Exp. 8/12

PC Secondary Review: KB 9/14/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

September 23, 2011 Service Request No: R1104862

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272 8/30/11

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on September 1, 2011. For your reference, these analyses have been assigned our service request number **R1104862**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

for:
Karen Bunker
Project Manager

Client:	Geosyntec	**Service Request No.:**	R1104862
Project:	ESTCP PED LC34/ TR0272	**Date Received:**	9/1/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples and one (1) Trip Blank were collected by the client on 8/31/11 and were received for analysis at Columbia Analytical Services on 9/1/11 via a national courier The samples were received at a cooler temperature of 3.9°C within the guidelines of 0-6°C.

Organic Compounds

Two (2) water samples and one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C, Organic Acids by HPLC and Method RSK-175 by GC. Samples were merged per client request for reporting.

Initial and Continuing Calibration Criteria was met for all samples for 8260C except the Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Bromomethane and Acetone on the 9/2/11 analytical run. All detected concentrations for these compounds in samples associated with these CCV should be considered as estimated.

All surrogate recoveries were within acceptance limits.

The Laboratory Control Samples (LCS) and LCS Duplicate (RSK & Organic Acids) recoveries were all within QC limits.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

Both samples had hits above the calibration range of the standards for Methane. The samples are then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were initially analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. The RSK-175 samples were analyzed within 14 days of collection for preserved samples. Organic Acids were analyzed within the proper holding time.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for Anions: Chloride, Nitrate, Nitrite, Bromide, Iodide and Sulfate by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F. The soluble metals were filtered in the laboratory upon receipt of the samples.

Approved by Natten **Date** 9/23/11

All initial and continuing calibration criteria were met for these analyses with the exception of the middle CCV for Nitrate (CCV2) on 9/1/11. All Nitrate samples were repeated outside of the 48 hour method specified holding time and have been flagged with a "*". Both sets of data have been reported.

All Laboratory Control Sample (LCS) recoveries were within QC limits.

Nitrite samples were analyzed at a dilution due to high Chloride concentrations which caused interferences and have been reported with high non-detects.

All Laboratory Method Blanks were free from contamination.

No other problems were encountered during the analyses of these samples.

Approved by _____ **Date** 9/23/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1104862

Lab ID	Client ID
R1104862-001	L34-RW0007-038.5-20110831
R1104862-002	L34-RW0007-038.5-20110831 Dissolved
R1104862-003	L34-RW0008-052.0-20110831
R1104862-004	L34-RW0008-052.0-20110831 Dissolved
R1104862-005	LC34-TB-20110831

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1009
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0007-038.5-20110831		
Lab Code:	R1104862-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**472**		mg/L	2.0	1	NA	9/2/11 07:40	
Bromide	300.0	**17.5**		mg/L	1.0	10	NA	9/1/11 18:22	
Carbon, Total Organic (TOC), Average	9060A	**280**		mg/L	30	30	NA	9/2/11 20:21	
Chloride	300.0	**487**		mg/L	20	100	NA	9/1/11 18:49	
Iodide	300.0	**11.2**		mg/L	2.0	10	NA	9/1/11 14:37	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/1/11 18:22	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	9/1/11 18:49	
Sulfate	300.0	**2.3**		mg/L	2.0	10	NA	9/6/11 21:03	
Sulfide, Total	SM 4500-S2- F	**22.6**		mg/L	0.98	1	NA	9/2/11 11:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1009
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0007-038.5-20110831		
Lab Code:	R1104862-001	**Basis:**	NA
Run Type:	Reanalysis		

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/6/11 21:03	*

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1009
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0007-038.5-20110831 Dissolved		
Lab Code:	R1104862-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 6/11	9/22/11 02:02	
Iron, Dissolved	6010C	**200**		µg/L	100	1	9/ 6/11	9/22/11 02:02	
Manganese, Dissolved	6010C	**23**		µg/L	10	1	9/ 6/11	9/22/11 02:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1009
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0007-038.5-20110831	**Units:**	µg/L
Lab Code:	R1104862-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	9/2/11 13:52		260182	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	9/2/11 13:52		260182	
1,1,2-Trichloroethane	500	U	500	23	100	NA	9/2/11 13:52		260182	
1,1,2-Trichloro-1,2,2-trifluoroethane	**13000**		500	31	100	NA	9/2/11 13:52		260182	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	9/2/11 13:52		260182	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	9/2/11 13:52		260182	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	9/2/11 13:52		260182	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	9/2/11 13:52		260182	
1,2-Dibromoethane	500	U	500	20	100	NA	9/2/11 13:52		260182	
1,2-Dichlorobenzene	500	U	500	20	100	NA	9/2/11 13:52		260182	
1,2-Dichloroethane	500	U	500	20	100	NA	9/2/11 13:52		260182	
1,2-Dichloropropane	500	U	500	29	100	NA	9/2/11 13:52		260182	
1,3-Dichlorobenzene	500	U	500	20	100	NA	9/2/11 13:52		260182	
1,4-Dichlorobenzene	500	U	500	20	100	NA	9/2/11 13:52		260182	
n-Butanol	**29000**		25000	1100	100	NA	9/2/11 13:52		260182	
2-Butanone (MEK)	1000	U	1000	51	100	NA	9/2/11 13:52		260182	
2-Hexanone	1000	U	1000	35	100	NA	9/2/11 13:52		260182	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	9/2/11 13:52		260182	
Acetone	2000	U	2000	98	100	NA	9/2/11 13:52		260182	
Benzene	500	U	500	21	100	NA	9/2/11 13:52		260182	
Bromodichloromethane	500	U	500	20	100	NA	9/2/11 13:52		260182	
Bromoform	500	U	500	27	100	NA	9/2/11 13:52		260182	
Bromomethane	500	U	500	31	100	NA	9/2/11 13:52		260182	
Carbon Disulfide	1000	U	1000	20	100	NA	9/2/11 13:52		260182	
Carbon Tetrachloride	500	U	500	27	100	NA	9/2/11 13:52		260182	
Chlorobenzene	500	U	500	20	100	NA	9/2/11 13:52		260182	
Chloroethane	500	U	500	31	100	NA	9/2/11 13:52		260182	
Chloroform	500	U	500	22	100	NA	9/2/11 13:52		260182	
Chloromethane	500	U	500	24	100	NA	9/2/11 13:52		260182	
Cyclohexane	1000	U	1000	24	100	NA	9/2/11 13:52		260182	
Dibromochloromethane	500	U	500	20	100	NA	9/2/11 13:52		260182	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	9/2/11 13:52		260182	
Dichloromethane	500	U	500	22	100	NA	9/2/11 13:52		260182	
Ethylbenzene	500	U	500	20	100	NA	9/2/11 13:52		260182	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	9/2/11 13:52		260182	
Methyl Acetate	1000	U	1000	23	100	NA	9/2/11 13:52		260182	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1009
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0007-038.5-20110831	**Units:**	µg/L
Lab Code:	R1104862-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	9/2/11 13:52		260182	
Methylcyclohexane	1000	U	1000	25	100	NA	9/2/11 13:52		260182	
Styrene	500	U	500	20	100	NA	9/2/11 13:52		260182	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	9/2/11 13:52		260182	
Toluene	500	U	500	20	100	NA	9/2/11 13:52		260182	
Trichloroethene (TCE)	**10000**		500	23	100	NA	9/2/11 13:52		260182	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	9/2/11 13:52		260182	
Vinyl Chloride	**2000**		500	23	100	NA	9/2/11 13:52		260182	
cis-1,2-Dichloroethene	**20000**		500	20	100	NA	9/2/11 13:52		260182	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	9/2/11 13:52		260182	
m,p-Xylenes	500	U	500	20	100	NA	9/2/11 13:52		260182	
n-Butyl Acetate	500	U	500	21	100	NA	9/2/11 13:52		260182	
o-Xylene	500	U	500	20	100	NA	9/2/11 13:52		260182	
trans-1,2-Dichloroethene	**150**	J	500	20	100	NA	9/2/11 13:52		260182	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	9/2/11 13:52		260182	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	9/2/11 13:52	
Dibromofluoromethane	103	89-119	9/2/11 13:52	
Toluene-d8	103	87-121	9/2/11 13:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1009
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0007-038.5-20110831	**Units:**	µg/L
Lab Code:	R1104862-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**49**		1.0	1	NA	9/8/11 10:37		260617	
Ethene	**15**		1.0	1	NA	9/8/11 10:37		260617	
Methane	**150**	D	4.0	2	NA	9/8/11 10:49		260617	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1009
Sample Matrix:	Water	**Date Received:**	9/ 1/11
		Date Analyzed:	9/2/11 16:50
Sample Name:	L34-RW0007-038.5-20110831	**Units:**	mg/L
Lab Code:	R1104862-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	260101
Data File Name:	J:\ACQUDATA\HPLC05\DATA\090211\X0006318.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**290**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**310**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**17**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1051
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0008-052.0-20110831		
Lab Code:	R1104862-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**329**		mg/L	2.0	1	NA	9/2/11 07:40	
Bromide	300.0	**5.6**		mg/L	1.0	10	NA	9/1/11 18:35	
Carbon, Total Organic (TOC), Average	9060A	**122**		mg/L	30	30	NA	9/2/11 21:01	
Chloride	300.0	**590**		mg/L	20	100	NA	9/1/11 19:28	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	9/1/11 14:45	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/1/11 18:35	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	9/1/11 19:28	
Sulfate	300.0	**3.7**		mg/L	2.0	10	NA	9/6/11 21:16	
Sulfide, Total	SM 4500-S2- F	**18.6**		mg/L	0.98	1	NA	9/2/11 11:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1051
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0008-052.0-20110831		
Lab Code:	R1104862-003	**Basis:**	NA
Run Type:	Reanalysis		

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/6/11 21:16	*

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1051
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0008-052.0-20110831 Dissolved		
Lab Code:	R1104862-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 6/11	9/22/11 02:08	
Iron, Dissolved	6010C	**190**		µg/L	100	1	9/ 6/11	9/22/11 02:08	
Manganese, Dissolved	6010C	**21**		µg/L	10	1	9/ 6/11	9/22/11 02:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1051
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0008-052.0-20110831	**Units:**	µg/L
Lab Code:	R1104862-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.2	5	NA	9/2/11 15:24		260182	
1,1,2,2-Tetrachloroethane	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
1,1,2-Trichloroethane	25	U	25	1.2	5	NA	9/2/11 15:24		260182	
1,1,2-Trichloro-1,2,2-trifluoroethane	**310**		25	1.6	5	NA	9/2/11 15:24		260182	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
1,1-Dichloroethene (1,1-DCE)	**2.1**	J	25	1.5	5	NA	9/2/11 15:24		260182	
1,2,4-Trichlorobenzene	25	U	25	1.3	5	NA	9/2/11 15:24		260182	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	5	NA	9/2/11 15:24		260182	
1,2-Dibromoethane	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
1,2-Dichlorobenzene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
1,2-Dichloroethane	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
1,2-Dichloropropane	25	U	25	1.5	5	NA	9/2/11 15:24		260182	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
n-Butanol	1300	U	1300	53	5	NA	9/2/11 15:24		260182	
2-Butanone (MEK)	50	U	50	2.6	5	NA	9/2/11 15:24		260182	
2-Hexanone	50	U	50	1.8	5	NA	9/2/11 15:24		260182	
4-Methyl-2-pentanone	50	U	50	1.4	5	NA	9/2/11 15:24		260182	
Acetone	**5.5**	J	100	4.9	5	NA	9/2/11 15:24		260182	
Benzene	25	U	25	1.1	5	NA	9/2/11 15:24		260182	
Bromodichloromethane	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Bromoform	25	U	25	1.4	5	NA	9/2/11 15:24		260182	
Bromomethane	25	U	25	1.6	5	NA	9/2/11 15:24		260182	
Carbon Disulfide	50	U	50	1.0	5	NA	9/2/11 15:24		260182	
Carbon Tetrachloride	25	U	25	1.4	5	NA	9/2/11 15:24		260182	
Chlorobenzene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Chloroethane	25	U	25	1.6	5	NA	9/2/11 15:24		260182	
Chloroform	25	U	25	1.1	5	NA	9/2/11 15:24		260182	
Chloromethane	25	U	25	1.2	5	NA	9/2/11 15:24		260182	
Cyclohexane	50	U	50	1.2	5	NA	9/2/11 15:24		260182	
Dibromochloromethane	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	5	NA	9/2/11 15:24		260182	
Dichloromethane	25	U	25	1.1	5	NA	9/2/11 15:24		260182	
Ethylbenzene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Methyl Acetate	50	U	50	1.2	5	NA	9/2/11 15:24		260182	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1051
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0008-052.0-20110831	**Units:**	µg/L
Lab Code:	R1104862-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Methylcyclohexane	50	U	50	1.3	5	NA	9/2/11 15:24		260182	
Styrene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Tetrachloroethene (PCE)	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Toluene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Trichloroethene (TCE)	**940**		25	1.2	5	NA	9/2/11 15:24		260182	
Trichlorofluoromethane (CFC 11)	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
Vinyl Chloride	**150**		25	1.2	5	NA	9/2/11 15:24		260182	
cis-1,2-Dichloroethene	**610**		25	1.0	5	NA	9/2/11 15:24		260182	
cis-1,3-Dichloropropene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
m,p-Xylenes	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
n-Butyl Acetate	25	U	25	1.1	5	NA	9/2/11 15:24		260182	
o-Xylene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	
trans-1,2-Dichloroethene	**3.2**	J	25	1.0	5	NA	9/2/11 15:24		260182	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	9/2/11 15:24		260182	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	9/2/11 15:24	
Dibromofluoromethane	104	89-119	9/2/11 15:24	
Toluene-d8	103	87-121	9/2/11 15:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1051
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	L34-RW0008-052.0-20110831	**Units:**	µg/L
Lab Code:	R1104862-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**3.8**		2.0	2	NA	9/8/11 10:59		260617	
Ethene	**23**		2.0	2	NA	9/8/11 10:59		260617	
Methane	**520**	D	20	10	NA	9/8/11 11:12		260617	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/31/11 1051
Sample Matrix:	Water	**Date Received:**	9/ 1/11
		Date Analyzed:	9/2/11 22:15
Sample Name:	L34-RW0008-052.0-20110831	**Units:**	mg/L
Lab Code:	R1104862-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	260101
Data File Name:	J:\ACQUDATA\HPLC05\DATA\090211\X0006324.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**210**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**72**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**15**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/30/11
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	LC34-TB-20110831	**Units:**	µg/L
Lab Code:	R1104862-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	9/2/11 16:24		260182	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	9/2/11 16:24		260182	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	9/2/11 16:24		260182	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	9/2/11 16:24		260182	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	9/2/11 16:24		260182	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	9/2/11 16:24		260182	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	9/2/11 16:24		260182	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
n-Butanol	250	U	250	11	1	NA	9/2/11 16:24		260182	
2-Butanone (MEK)	10	U	10	0.51	1	NA	9/2/11 16:24		260182	
2-Hexanone	10	U	10	0.35	1	NA	9/2/11 16:24		260182	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	9/2/11 16:24		260182	
Acetone	20	U	20	0.98	1	NA	9/2/11 16:24		260182	
Benzene	5.0	U	5.0	0.21	1	NA	9/2/11 16:24		260182	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Bromoform	5.0	U	5.0	0.27	1	NA	9/2/11 16:24		260182	
Bromomethane	5.0	U	5.0	0.31	1	NA	9/2/11 16:24		260182	
Carbon Disulfide	10	U	10	0.20	1	NA	9/2/11 16:24		260182	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	9/2/11 16:24		260182	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Chloroethane	5.0	U	5.0	0.31	1	NA	9/2/11 16:24		260182	
Chloroform	5.0	U	5.0	0.22	1	NA	9/2/11 16:24		260182	
Chloromethane	5.0	U	5.0	0.24	1	NA	9/2/11 16:24		260182	
Cyclohexane	10	U	10	0.24	1	NA	9/2/11 16:24		260182	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	9/2/11 16:24		260182	
Dichloromethane	5.0	U	5.0	0.22	1	NA	9/2/11 16:24		260182	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Methyl Acetate	10	U	10	0.23	1	NA	9/2/11 16:24		260182	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	8/30/11
Sample Matrix:	Water	**Date Received:**	9/ 1/11
Sample Name:	LC34-TB-20110831	**Units:**	µg/L
Lab Code:	R1104862-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Methylcyclohexane	10	U	10	0.25	1	NA	9/2/11 16:24		260182	
Styrene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Toluene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	9/2/11 16:24		260182	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	9/2/11 16:24		260182	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	9/2/11 16:24		260182	
o-Xylene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	9/2/11 16:24		260182	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	9/2/11 16:24	
Dibromofluoromethane	104	89-119	9/2/11 16:24	
Toluene-d8	103	87-121	9/2/11 16:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104862-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	9/2/11 07:40	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	9/1/11 17:50	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	9/2/11 13:53	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	9/1/11 17:50	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	9/1/11 13:38	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	9/1/11 17:50	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	9/1/11 17:50	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	9/6/11 16:34	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	9/2/11 11:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104862-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	9/6/11 16:34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104862-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 6/11	9/22/11 00:34	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/ 6/11	9/22/11 00:34	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	9/ 6/11	9/22/11 00:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1104862-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/ 6/11	9/22/11 00:39	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/ 6/11	9/22/11 00:39	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	9/ 6/11	9/22/11 00:39	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108840-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	9/2/11 13:11		260182	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	9/2/11 13:11		260182	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	9/2/11 13:11		260182	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	9/2/11 13:11		260182	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	9/2/11 13:11		260182	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	9/2/11 13:11		260182	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	9/2/11 13:11		260182	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
n-Butanol	250	U	250	11	1	NA	9/2/11 13:11		260182	
2-Butanone (MEK)	10	U	10	0.51	1	NA	9/2/11 13:11		260182	
2-Hexanone	10	U	10	0.35	1	NA	9/2/11 13:11		260182	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	9/2/11 13:11		260182	
Acetone	20	U	20	0.98	1	NA	9/2/11 13:11		260182	
Benzene	5.0	U	5.0	0.21	1	NA	9/2/11 13:11		260182	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Bromoform	5.0	U	5.0	0.27	1	NA	9/2/11 13:11		260182	
Bromomethane	5.0	U	5.0	0.31	1	NA	9/2/11 13:11		260182	
Carbon Disulfide	10	U	10	0.20	1	NA	9/2/11 13:11		260182	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	9/2/11 13:11		260182	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Chloroethane	5.0	U	5.0	0.31	1	NA	9/2/11 13:11		260182	
Chloroform	5.0	U	5.0	0.22	1	NA	9/2/11 13:11		260182	
Chloromethane	5.0	U	5.0	0.24	1	NA	9/2/11 13:11		260182	
Cyclohexane	10	U	10	0.24	1	NA	9/2/11 13:11		260182	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	9/2/11 13:11		260182	
Dichloromethane	5.0	U	5.0	0.22	1	NA	9/2/11 13:11		260182	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Methyl Acetate	10	U	10	0.23	1	NA	9/2/11 13:11		260182	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108840-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Methylcyclohexane	10	U	10	0.25	1	NA	9/2/11 13:11		260182	
Styrene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Toluene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	9/2/11 13:11		260182	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	9/2/11 13:11		260182	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	9/2/11 13:11		260182	
o-Xylene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	9/2/11 13:11		260182	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	9/2/11 13:11	
Dibromofluoromethane	102	89-119	9/2/11 13:11	
Toluene-d8	102	87-121	9/2/11 13:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1108890-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	9/8/11 09:43		260617	
Ethene	1.0	U	1.0	1	NA	9/8/11 09:43		260617	
Methane	2.0	U	2.0	1	NA	9/8/11 09:43		260617	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1104862
Project:	ESTCP PED LC34 TR0272 8/30/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/2/11 14:31
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1108741-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	260101
Data File Name:	J:\ACQUDATA\HPLC05\DATA\090211\X0006315.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/ 2/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104862-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1104862-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.02	4.7	106	4.98	4.7	105	56 - 138	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/ 1/11 - 9/ 6/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104862-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.981	1.00	98	90 - 110
Chloride	300.0	1.92	2.00	96	90 - 110
Iodide	300.0	0.971	1.00	97	90 - 110
Nitrate as Nitrogen	300.0	0.949	1.00	95	90 - 110
Sulfate	300.0	2.02	2.00	101	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.0	20.0	95	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.1	10.0	101	86 - 117
Nitrite as Nitrogen	300.0	0.974	1.00	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/ 6/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104862-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Nitrate as Nitrogen	300.0	0.999	1.00	100	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/22/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1104862-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	39.2	40	98	80 - 120
Iron, Dissolved	6010C	1020	1000	102	80 - 120
Manganese, Dissolved	6010C	486	500	97	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/ 2/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 260182

Lab Control Sample
RQ1108840-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.2	20.0	86	72 - 128
1,1,2,2-Tetrachloroethane	19.9	20.0	100	72 - 131
1,1,2-Trichloroethane	18.8	20.0	94	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.0	20.0	85	68 - 136
1,1-Dichloroethane (1,1-DCA)	18.8	20.0	94	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.8	20.0	89	72 - 129
1,2,4-Trichlorobenzene	18.3	20.0	91	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84	62 - 131
1,2-Dibromoethane	19.9	20.0	99	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	19.1	20.0	95	73 - 127
1,2-Dichloropropane	19.4	20.0	97	80 - 123
1,3-Dichlorobenzene	18.3	20.0	91	78 - 124
1,4-Dichlorobenzene	18.1	20.0	91	78 - 123
n-Butanol	1020	1000	102	70 - 130
2-Butanone (MEK)	17.7	20.0	89	60 - 133
2-Hexanone	16.9	20.0	84	61 - 131
4-Methyl-2-pentanone	17.1	20.0	85	61 - 132
Acetone	16.6	20.0	83	54 - 139
Benzene	17.8	20.0	89	78 - 121
Bromodichloromethane	18.6	20.0	93	80 - 125
Bromoform	17.7	20.0	88	68 - 130
Bromomethane	15.6	20.0	78	57 - 144
Carbon Disulfide	19.3	20.0	96	52 - 140
Carbon Tetrachloride	16.7	20.0	84	68 - 133
Chlorobenzene	18.4	20.0	92	80 - 121
Chloroethane	19.6	20.0	98	71 - 130
Chloroform	19.2	20.0	96	78 - 125
Chloromethane	17.3	20.0	87	61 - 138
Cyclohexane	15.9	20.0	80	57 - 126
Dibromochloromethane	18.8	20.0	94	78 - 133
Dichlorodifluoromethane (CFC 12)	16.5	20.0	83	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/ 2/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 260182

Lab Control Sample
RQ1108840-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.3	20.0	97	75 - 125
Ethylbenzene	18.6	20.0	93	78 - 123
Isopropylbenzene (Cumene)	20.3	20.0	102	73 - 133
Methyl Acetate	19.8	20.0	99	57 - 157
Methyl tert-Butyl Ether	18.5	20.0	93	75 - 126
Methylcyclohexane	16.3	20.0	81	61 - 125
Styrene	20.0	20.0	100	80 - 132
Tetrachloroethene (PCE)	17.6	20.0	88	72 - 131
Toluene	17.9	20.0	90	78 - 122
Trichloroethene (TCE)	17.7	20.0	88	74 - 127
Trichlorofluoromethane (CFC 11)	17.7	20.0	89	69 - 141
Vinyl Chloride	18.7	20.0	93	72 - 138
cis-1,2-Dichloroethene	18.9	20.0	95	78 - 122
cis-1,3-Dichloropropene	18.3	20.0	92	77 - 125
m,p-Xylenes	38.5	40.0	96	79 - 126
n-Butyl Acetate	17.0	20.0	85	31 - 144
o-Xylene	19.4	20.0	97	77 - 118
trans-1,2-Dichloroethene	18.1	20.0	91	75 - 121
trans-1,3-Dichloropropene	17.7	20.0	89	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/ 8/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 260617

Lab Control Sample
RQ1108890-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	29.8	26.1	114	56 - 148
Ethene	26.3	24.3	108	58 - 155
Methane	29.8	26.2	114	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 8/30/11
Sample Matrix: Water

Service Request: R1104862
Date Analyzed: 9/ 2/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 260101

	Lab Control Sample RQ1108741-02			Duplicate Lab Control Sample RQ1108741-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.15	1.00	115	1.14	1.00	114	70 - 130	<1	30
Acetic Acid	9.15	10.0	92	9.72	10.0	97	70 - 135	6	30
Butanoic Acid (Butyric Acid)	10.1	10.0	101	10.0	10.0	100	78 - 113	<1	30
Lactic Acid	9.00	9.97	90	9.24	9.97	93	61 - 109	3	30
Propionic Acid	9.69	9.97	97	9.83	9.97	99	80 - 125	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature: JRBartlett

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20110830	08/30/11	1009	-001, -002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20110830	"	1051	-003, -004	W	15	3	2	1	3	1	3	1	1		
LC34-TB-20110830	"	NA	-005	W	3	3									
	8/31/11	aspen client mail													
			KB 9/1/11												

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1104862
GeoSyntec Consultants
ESTCP PED LC34 TR0272 8/30/11

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: JRBartlett	Signature:	Signature:	Signature: Daniel Ward
Printed Name: Joseph Bartlett	Printed Name:	Printed Name:	Printed Name: Daniel Ward
Firm: GeoSyntec Consultants	Firm:	Firm:	Firm: CAS
Date/Time: 08/30/11 — 1630	Date/Time:	Date/Time:	Date/Time: 9/1/11 / 1020

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1104802

Cooler received on 9/1/11 by: DM COURIER: CAS UPS ~~FEDEX~~ VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	~~YES~~	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	~~YES~~	NO			
3.	Did all bottles arrive in good condition (unbroken)?	~~YES~~	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	~~NO~~	N/A		
5.	Were ~~Ice~~ or **Ice packs** present?	~~YES~~	NO			
6.	Where did the bottles originate?	CAS/~~ROC~~, CLIENT				
7.	Temperature of cooler(s) upon receipt:	3.9°				
	Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 9/1/11 / 1028

Thermometer ID: IR GUN#3 / IR ~~GUN#4~~ Reading From: Temp Blank / ~~Sample Bottle~~

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 9/1/11

Cooler Breakdown: Date: 9/1/11 Time: 1216 by: DM

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		N/A

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	410020	7/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-045-004, 072511-200, 1087-002

Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

October 03, 2011 Service Request No: R1105169

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 9/15/11

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on September 16, 2011. For your reference, these analyses have been assigned our service request number **R1105169**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1105169
Project:	ESTCP PED LC34/ TR0272 9/15/11	**Date Received:**	9/16/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 9/15/11 and were received for analysis at Columbia Analytical Services on 9/16/11 via a national courier The samples were received at a cooler temperature of 0.8°C within the guidelines of 0-6°C.

Organic Compounds

Two (2) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) samples were also analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples for 8260C.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD) (RSK & Organic Acids) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. Subsequent hits on the dilution are flagged as "D". The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "J", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0 The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All LCS and LCSD (Sulfide) recoveries were within QC limits.

Approved by Karen Beeler **Date** 10/4/11

All samples were initially analyzed within holding times for these analyses. The Nitrite analysis was repeated almost 2 hours outside of the 48 hour holding time due to an interfering Chloride peak on the initial analysis. Only the reanalysis date has been reported. The data has been flagged as "*".

All Laboratory Method Blanks were free from contamination.

No other problems were encountered during the analysis of these samples.

Approved by Karen J Beecher Date 10/4/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1105169

Lab ID	Client ID
R1105169-001	LC34-RW0007-038.5-2011091511
R1105169-002	LC34-RW0007-038.5-2011091511 Dissolved
R1105169-003	LC34-RW0008-052.0-20110915
R1105169-004	LC34-RW0008-052.0-20110915 Dissolved

Columbia Analytical Services INC

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1245
Sample Matrix:	Water	**Date Received:**	9/16/11
Sample Name:	LC34-RW0007-038.5-2011091511		
Lab Code:	R1105169-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**445**		mg/L	2.0	1	NA	9/26/11 10:00	
Bromide	300.0	**12.9**		mg/L	1.0	10	NA	9/16/11 17:05	
Carbon, Total Organic (TOC), Average	9060A	**219**		mg/L	30	30	NA	9/19/11 14:58	
Chloride	300.0	**512**		mg/L	20	100	NA	9/17/11 14:37	
Iodide	300.0	**10.3**		mg/L	2.0	10	NA	9/22/11 12:26	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/16/11 17:05	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	9/17/11 14:37	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	9/16/11 17:05	
Sulfide, Total	SM 4500-S2- F	**21.1**		mg/L	1.0	1	NA	9/20/11 18:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1245
Sample Matrix:	Water	**Date Received:**	9/16/11
Sample Name:	LC34-RW0007-038.5-2011091511 Dissolved		
Lab Code:	R1105169-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/19/11	9/25/11 13:19	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/19/11	9/26/11 18:33	
Manganese, Dissolved	6010C	**23**		µg/L	10	1	9/19/11	9/25/11 13:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1245
Sample Matrix:	Water	**Date Received:**	9/16/11
		Date Analyzed:	9/20/11 19:15
Sample Name:	LC34-RW0007-038.5-2011091511	**Units:**	µg/L
Lab Code:	R1105169-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	262130
Data File Name:	J:\ACQUDATA\msvoa10\data\092011\D4909.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**14000**		500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**57**	J	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1100	
78-93-3	2-Butanone (MEK)	1000	U	1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	2000	U	2000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	500	U	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	1000	U	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	**81**	J	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1245
Sample Matrix:	Water	**Date Received:**	9/16/11
		Date Analyzed:	9/20/11 19:15
Sample Name:	LC34-RW0007-038.5-2011091511	**Units:**	µg/L
Lab Code:	R1105169-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	262130
Data File Name:	J:\ACQUDATA\msvoa10\data\092011\D4909.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	**8400**		500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**3100**		500	23	
156-59-2	cis-1,2-Dichloroethene	**19000**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	500	U	500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**150**	J	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	9/20/11 19:15	
Dibromofluoromethane	109	89-119	9/20/11 19:15	
Toluene-d8	103	87-121	9/20/11 19:15	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1245
Sample Matrix:	Water	**Date Received:**	9/16/11
Sample Name:	LC34-RW0007-038.5-2011091511	**Units:**	µg/L
Lab Code:	R1105169-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**48**		1.0	1	NA	9/23/11 11:03		262654	
Ethene	**33**		1.0	1	NA	9/23/11 11:03		262654	
Methane	**290**	D	10	5	NA	9/23/11 11:15		262654	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1245
Sample Matrix:	Water	**Date Received:**	9/16/11
		Date Analyzed:	9/23/11 21:02
Sample Name:	LC34-RW0007-038.5-2011091511	**Units:**	mg/L
Lab Code:	R1105169-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	262775
Data File Name:	J:\ACQUDATA\HPLC05\DATA\092311\X0006390.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**250**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**250**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**16**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1323
Sample Matrix:	Water	**Date Received:**	9/16/11
Sample Name:	LC34-RW0008-052.0-20110915		
Lab Code:	R1105169-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**299**		mg/L	2.0	1	NA	9/26/11 10:00	
Bromide	300.0	**4.8**		mg/L	1.0	10	NA	9/16/11 17:31	
Carbon, Total Organic (TOC), Average	9060A	**80**		mg/L	10	10	NA	9/19/11 15:38	
Chloride	300.0	**609**		mg/L	20	100	NA	9/17/11 14:50	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	9/22/11 12:34	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/16/11 17:31	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	9/17/11 14:50	*
Sulfate	300.0	**17.4**		mg/L	2.0	10	NA	9/16/11 17:31	
Sulfide, Total	SM 4500-S2- F	**15.4**		mg/L	1.0	1	NA	9/20/11 18:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1323
Sample Matrix:	Water	**Date Received:**	9/16/11
Sample Name:	LC34-RW0008-052.0-20110915 Dissolved		
Lab Code:	R1105169-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/19/11	9/25/11 13:25	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/19/11	9/26/11 18:39	
Manganese, Dissolved	6010C	**16**		µg/L	10	1	9/19/11	9/25/11 13:25	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1323
Sample Matrix:	Water	**Date Received:**	9/16/11
		Date Analyzed:	9/20/11 19:45
Sample Name:	LC34-RW0008-052.0-20110915	**Units:**	µg/L
Lab Code:	R1105169-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	262130
Data File Name:	J:\ACQUDATA\msvoa10\data\092011\D4910.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	25	U	25	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	25	U	25	1.0	
79-00-5	1,1,2-Trichloroethane	25	U	25	1.2	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**470**		25	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	25	U	25	1.5	
120-82-1	1,2,4-Trichlorobenzene	25	U	25	1.3	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	
106-93-4	1,2-Dibromoethane	25	U	25	1.0	
95-50-1	1,2-Dichlorobenzene	25	U	25	1.0	
107-06-2	1,2-Dichloroethane	25	U	25	1.0	
78-87-5	1,2-Dichloropropane	25	U	25	1.5	
541-73-1	1,3-Dichlorobenzene	25	U	25	1.0	
106-46-7	1,4-Dichlorobenzene	25	U	25	1.0	
71-36-3	n-Butanol	1300	U	1300	53	
78-93-3	2-Butanone (MEK)	50	U	50	2.6	
591-78-6	2-Hexanone	50	U	50	1.8	
108-10-1	4-Methyl-2-pentanone	50	U	50	1.4	
67-64-1	Acetone	100	U	100	4.9	
71-43-2	Benzene	25	U	25	1.1	
75-27-4	Bromodichloromethane	25	U	25	1.0	
75-25-2	Bromoform	25	U	25	1.4	
74-83-9	Bromomethane	25	U	25	1.6	
75-15-0	Carbon Disulfide	50	U	50	1.0	
56-23-5	Carbon Tetrachloride	25	U	25	1.4	
108-90-7	Chlorobenzene	25	U	25	1.0	
75-00-3	Chloroethane	25	U	25	1.6	
67-66-3	Chloroform	**1.6**	J	25	1.1	
74-87-3	Chloromethane	25	U	25	1.2	
110-82-7	Cyclohexane	50	U	50	1.2	
124-48-1	Dibromochloromethane	25	U	25	1.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	
75-09-2	Dichloromethane	25	U	25	1.1	
100-41-4	Ethylbenzene	25	U	25	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1323
Sample Matrix:	Water	**Date Received:**	9/16/11
		Date Analyzed:	9/20/11 19:45
Sample Name:	LC34-RW0008-052.0-20110915	**Units:**	µg/L
Lab Code:	R1105169-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	262130
Data File Name:	J:\ACQUDATA\msvoa10\data\092011\D4910.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	25	U	25	1.0	
79-20-9	Methyl Acetate	50	U	50	1.2	
1634-04-4	Methyl tert-Butyl Ether	25	U	25	1.0	
108-87-2	Methylcyclohexane	50	U	50	1.3	
100-42-5	Styrene	25	U	25	1.0	
127-18-4	Tetrachloroethene (PCE)	25	U	25	1.0	
108-88-3	Toluene	25	U	25	1.0	
79-01-6	Trichloroethene (TCE)	**970**		25	1.2	
75-69-4	Trichlorofluoromethane (CFC 11)	25	U	25	1.0	
75-01-4	Vinyl Chloride	**310**		25	1.2	
156-59-2	cis-1,2-Dichloroethene	**860**		25	1.0	
10061-01-5	cis-1,3-Dichloropropene	25	U	25	1.0	
179601-23-1	m,p-Xylenes	25	U	25	1.0	
123-86-4	n-Butyl Acetate	25	U	25	1.1	
95-47-6	o-Xylene	25	U	25	1.0	
156-60-5	trans-1,2-Dichloroethene	**5.4**	J	25	1.0	
10061-02-6	trans-1,3-Dichloropropene	25	U	25	1.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	9/20/11 19:45	
Dibromofluoromethane	109	89-119	9/20/11 19:45	
Toluene-d8	104	87-121	9/20/11 19:45	

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1323
Sample Matrix:	Water	**Date Received:**	9/16/11
Sample Name:	LC34-RW0008-052.0-20110915	**Units:**	µg/L
Lab Code:	R1105169-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**4.4**		2.0	2	NA	9/23/11 11:31		262654	
Ethene	**26**		2.0	2	NA	9/23/11 11:31		262654	
Methane	**430**	D	10	5	NA	9/23/11 11:44		262654	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	9/15/11 1323
Sample Matrix:	Water	**Date Received:**	9/16/11
		Date Analyzed:	9/26/11 17:46
Sample Name:	LC34-RW0008-052.0-20110915	**Units:**	mg/L
Lab Code:	R1105169-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	262932
Data File Name:	J:\ACQUDATA\HPLC05\DATA\092611\X0006433.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**140**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**34**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**5.1**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105169-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	9/26/11 10:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	9/16/11 16:39	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	9/19/11 13:39	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	9/17/11 14:11	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	9/22/11 12:09	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	9/16/11 16:39	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	9/17/11 14:11	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	9/16/11 16:39	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	9/20/11 18:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105169-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/19/11	9/25/11 10:18	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/19/11	9/26/11 15:52	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	9/19/11	9/25/11 10:18	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105169-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	9/19/11	9/25/11 10:29	
Iron, Dissolved	6010C	100	U	µg/L	100	1	9/19/11	9/26/11 15:56	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	9/19/11	9/25/11 10:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/20/11 14:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109417-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	262130
Data File Name:	J:\ACQUDATA\msvoa10\data\092011\D4900.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/20/11 14:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109417-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	262130
Data File Name:	J:\ACQUDATA\msvoa10\data\092011\D4900.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	9/20/11 14:46	
Dibromofluoromethane	105	89-119	9/20/11 14:46	
Toluene-d8	103	87-121	9/20/11 14:46	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/23/11 10:02
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109498-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	262654
Data File Name:	star143.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/23/11 12:15
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1109522-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	262775
Data File Name:	J:\ACQUDATA\HPLC05\DATA\092311\X0006380.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/26/11 12:40
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1109561-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	262932
Data File Name:	J:\ACQUDATA\HPLC05\DATA\092611\X0006427.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/15/11
Sample Matrix: Water

Service Request: R1105169
Date Analyzed: 9/20/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105169-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1105169-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	8.38	8.5	99	8.69	8.5	103	56 - 138	4	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/15/11
Sample Matrix: Water

Service Request: R1105169
Date Analyzed: 9/16/11 - 9/26/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105169-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.02	1.00	102	90 - 110
Chloride	300.0	2.02	2.00	101	90 - 110
Iodide	300.0	0.953	1.00	95	90 - 110
Nitrate as Nitrogen	300.0	0.993	1.00	99	90 - 110
Sulfate	300.0	1.94	2.00	97	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.9	20.0	100	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.3	10.0	103	86 - 117
Nitrite as Nitrogen	300.0	1.02	1.0	102	90 - 110

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105169
Project:	ESTCP PED LC34 9/15/11	**Date Analyzed:**	9/25/11 - 9/26/11
Sample Matrix:	Water		

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

		Lab Control Sample R1105169-LCS			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Arsenic, Dissolved	6010C	39.7	40	99	80 - 120
Iron, Dissolved	6010C	1030	1000	103	80 - 120
Manganese, Dissolved	6010C	513	500	103	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/15/11
Sample Matrix: Water

Service Request: R1105169
Date Analyzed: 9/20/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 262130

	Lab Control Sample RQ1109417-02			Duplicate Lab Control Sample RQ1109417-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	19.5	20.0	97	19.9	20.0	100	72 - 128	2	30
1,1,2,2-Tetrachloroethane	19.4	20.0	97	19.3	20.0	97	72 - 131	<1	30
1,1,2-Trichloroethane	19.9	20.0	99	20.0	20.0	100	80 - 122	<1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	18.1	20.0	90	19.1	20.0	96	68 - 136	6	30
1,1-Dichloroethane (1,1-DCA)	19.4	20.0	97	20.0	20.0	100	76 - 124	3	30
1,1-Dichloroethene (1,1-DCE)	18.9	20.0	95	19.0	20.0	95	72 - 129	<1	30
1,2,4-Trichlorobenzene	19.5	20.0	97	18.9	20.0	95	70 - 133	3	30
1,2-Dibromo-3-chloropropane (DBCP)	17.5	20.0	88	17.1	20.0	85	62 - 131	2	30
1,2-Dibromoethane	19.8	20.0	99	20.7	20.0	104	78 - 125	5	30
1,2-Dichlorobenzene	20.2	20.0	101	20.4	20.0	102	79 - 124	<1	30
1,2-Dichloroethane	19.7	20.0	99	20.2	20.0	101	73 - 127	2	30
1,2-Dichloropropane	19.7	20.0	98	20.5	20.0	103	80 - 123	4	30
1,3-Dichlorobenzene	19.7	20.0	99	19.8	20.0	99	78 - 124	<1	30
1,4-Dichlorobenzene	19.6	20.0	98	19.6	20.0	98	78 - 123	<1	30
n-Butanol	951	1000	95	962	1000	96	70 - 130	1	30
2-Butanone (MEK)	17.4	20.0	87	17.9	20.0	90	60 - 133	3	30
2-Hexanone	15.5	20.0	77	15.9	20.0	79	61 - 131	3	30
4-Methyl-2-pentanone	16.3	20.0	81	17.3	20.0	86	61 - 132	6	30
Acetone	18.2	20.0	91	17.4	20.0	87	54 - 139	4	30
Benzene	19.1	20.0	96	19.7	20.0	98	78 - 121	3	30
Bromodichloromethane	20.3	20.0	102	20.9	20.0	105	80 - 125	3	30
Bromoform	19.7	20.0	98	20.6	20.0	103	68 - 130	5	30
Bromomethane	18.4	20.0	92	18.5	20.0	92	57 - 144	<1	30
Carbon Disulfide	22.4	20.0	112	23.1	20.0	116	52 - 140	3	30
Carbon Tetrachloride	19.7	20.0	99	20.3	20.0	101	68 - 133	3	30
Chlorobenzene	19.7	20.0	98	20.4	20.0	102	80 - 121	4	30
Chloroethane	20.0	20.0	100	20.3	20.0	101	71 - 130	1	30
Chloroform	20.8	20.0	104	21.2	20.0	106	78 - 125	2	30
Chloromethane	16.7	20.0	83	17.1	20.0	85	61 - 138	2	30
Cyclohexane	17.4	20.0	87	17.9	20.0	90	57 - 126	3	30
Dibromochloromethane	20.2	20.0	101	21.2	20.0	106	78 - 133	5	30
Dichlorodifluoromethane (CFC 12)	14.4	20.0	72	15.3	20.0	77	45 - 159	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/15/11
Sample Matrix: Water

Service Request: R1105169
Date Analyzed: 9/20/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 262130

Analyte Name	Lab Control Sample RQ1109417-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1109417-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Dichloromethane	19.9	20.0	99	20.2	20.0	101	75 - 125	2	30
Ethylbenzene	20.2	20.0	101	20.7	20.0	104	78 - 123	3	30
Isopropylbenzene (Cumene)	21.9	20.0	109	22.8	20.0	114	73 - 133	4	30
Methyl Acetate	18.9	20.0	94	19.5	20.0	97	57 - 157	3	30
Methyl tert-Butyl Ether	18.0	20.0	90	18.8	20.0	94	75 - 126	4	30
Methylcyclohexane	18.2	20.0	91	19.0	20.0	95	61 - 125	5	30
Styrene	21.4	20.0	107	22.1	20.0	111	80 - 132	3	30
Tetrachloroethene (PCE)	19.9	20.0	100	20.2	20.0	101	72 - 131	1	30
Toluene	19.7	20.0	98	20.2	20.0	101	78 - 122	3	30
Trichloroethene (TCE)	19.8	20.0	99	20.4	20.0	102	74 - 127	3	30
Trichlorofluoromethane (CFC 11)	19.8	20.0	99	20.8	20.0	104	69 - 141	5	30
Vinyl Chloride	19.1	20.0	95	19.7	20.0	98	72 - 138	3	30
cis-1,2-Dichloroethene	19.8	20.0	99	20.8	20.0	104	78 - 122	5	30
cis-1,3-Dichloropropene	18.9	20.0	95	19.5	20.0	97	77 - 125	3	30
m,p-Xylenes	41.9	40.0	105	43.5	40.0	109	79 - 126	4	30
n-Butyl Acetate	14.9	20.0	75	16.1	20.0	80	31 - 144	7	30
o-Xylene	20.5	20.0	102	21.3	20.0	106	77 - 118	4	30
trans-1,2-Dichloroethene	20.0	20.0	100	20.3	20.0	102	75 - 121	2	30
trans-1,3-Dichloropropene	18.2	20.0	91	19.0	20.0	95	69 - 127	4	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/15/11
Sample Matrix: Water

Service Request: R1105169
Date Analyzed: 9/23/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 262654

Analyte Name	Lab Control Sample RQ1109498-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1109498-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	28.0	26.0	108	26.8	26.0	103	56 - 148	4	30
Ethene	25.1	24.3	103	24.2	24.3	100	58 - 155	4	30
Methane	28.8	26.2	110	27.7	26.2	106	55 - 150	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/15/11
Sample Matrix: Water

Service Request: R1105169
Date Analyzed: 9/23/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 262775

	Lab Control Sample RQ1109522-02			Duplicate Lab Control Sample RQ1109522-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.08	1.00	108	1.12	1.00	112	70 - 130	4	30
Acetic Acid	10.3	10.0	103	10.5	10.0	105	70 - 135	1	30
Butanoic Acid (Butyric Acid)	10.3	10.0	103	10.2	10.0	102	78 - 113	1	30
Lactic Acid	8.86	9.97	89	8.98	9.97	90	61 - 109	1	30
Propionic Acid	9.48	9.97	95	10.6	9.97	107	80 - 125	12	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/15/11
Sample Matrix: Water

Service Request: R1105169
Date Analyzed: 9/26/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 262932

	Lab Control Sample RQ1109561-02			Duplicate Lab Control Sample RQ1109561-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.03	1.00	103	1.03	1.00	103	70 - 130	<1	30
Acetic Acid	9.93	10.0	99	9.99	10.0	100	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.99	10.0	100	9.56	10.0	96	78 - 113	4	30
Lactic Acid	8.72	9.97	87	8.74	9.97	88	61 - 109	<1	30
Propionic Acid	9.29	9.97	93	9.31	9.97	93	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20110915	09/15/11	1245	-001 .002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20110915	09/15/11	1323	003, 004	W	15	3	2	1	3	1	3	1	1		
~~LC34-TB-2011~~ JB															

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1105169
GeoSyntec Consultants
ESTCP PED LC34 9/16/11

Invoice Information

P.O. #

Bill to: TR0272

RELINQUISHED BY:

Signature:

Printed Name: Joseph Barrett

Firm: GeoSyntec

Date/Time: 09/15/11 1630

RECEIVED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Daniel Ward

Firm: CAS

Date/Time: 9/16/11 0955

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec-FL Folder Number R1105169

Cooler received on 9/16/11 by: DPW COURIER: CAS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?		YES	(NO)		
2.	Were custody papers properly filled out (ink, signed, etc.)?		(YES)	NO		
3.	Did all bottles arrive in good condition (unbroken)?		(YES)	NO		
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?		YES	(NO)	N/A	
5.	Were ~~Ice~~ or ~~Ice packs~~ present?		(YES)	NO		
6.	Where did the bottles originate?		GAS/ROC, CLIENT			
7.	Temperature of cooler(s) upon receipt:	0.8°				
	Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 9/16/11 / 0957

Thermometer ID: IR GUN#3 / IR ~~GUN#4~~ Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 9/16/11

Cooler Breakdown: Date: 9/16/11 Time: 1138 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(~~N/A~~)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC1030S1F	2/16				
≤2	HNO_3								
≤2	H_2SO_4			WC1031380	8/12				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC1030980	5/12				
	HCl	*	*	4110020	7/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-087-002, 072511-201

Other Comments:

PC Secondary Review: KB 10/4/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

October 14, 2011 Service Request No: R1105400

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34 ESTCP PED TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on September 29, 2011. For your reference, these analyses have been assigned our service request number **R1105400**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1105400
Project:	ESTCP PED LC34/ TR0272 9/28/11	**Date Received:**	9/29/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples and one (1) Trip Blank were collected by the client on 9/28/11 and were received for analysis at Columbia Analytical Services on 9/29/11 via a national courier The samples were received at a cooler temperature of 2.7°C within the guidelines of 0-6°C. Sample vials received from CAS were preserved with HCL. The client triple rinsed the vials prior to sampling.

Organic Compounds

Two (2) water samples and one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) samples were also analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples for 8260C.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD), (RSK & Organic Acids) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for Acetone on the 10/4/11 analytical run. No data was affected. The Trip Blank also had low level contamination for Acetone.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0 The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All LCS and LCSD (Sulfide) recoveries were within QC limits.

Approved by Karen Burke **Date** 10/14/11

All samples were analyzed within holding times for these analyses except for Nitrite analysis which were repeated outside of the 48 hour holding time by less than 2 hours due to an interfering Chloride peak on the initial analysis. Only the reanalysis date has been reported. The data has been flagged as "*" for the holding time exceedence.

All Laboratory Method Blanks were free from contamination.

No other problems were encountered during the analysis of these samples.

Approved by Karen Beerbee Date 10/14/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1105400

Lab ID	Client ID
R1105400-001	LC34-RW0007-038.5-20110928
R1105400-002	LC34-RW0007-038.5-20110928 Dissolved
R1105400-003	LC34-RW0008-052.0-20110928
R1105400-004	LC34-RW0008-052.0-20110928 Dissolved
R1105400-005	LC34-TB-20110928

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1047
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0007-038.5-20110928		
Lab Code:	R1105400-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**440**		mg/L	2.0	1	NA	10/4/11 09:00	
Bromide	300.0	**16.0**		mg/L	1.0	10	NA	9/29/11 17:48	
Carbon, Total Organic (TOC), Average	9060A	**242**		mg/L	10	10	NA	9/30/11 14:14	
Chloride	300.0	**509**		mg/L	20	100	NA	9/30/11 12:23	
Iodide	300.0	**11.5**		mg/L	2.0	10	NA	10/10/11 13:33	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/29/11 17:48	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	9/30/11 12:23	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	9/29/11 17:48	
Sulfide, Total	SM 4500-S2- F	**19.9**		mg/L	1.0	1	NA	9/30/11 12:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1047
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0007-038.5-20110928 Dissolved		
Lab Code:	R1105400-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/ 3/11	10/5/11 21:32	
Iron, Dissolved	6010C	**140**		µg/L	100	1	10/ 3/11	10/5/11 21:32	
Manganese, Dissolved	6010C	**21**		µg/L	10	1	10/ 3/11	10/5/11 21:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1047
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0007-038.5-20110928	**Units:**	µg/L
Lab Code:	R1105400-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	10/3/11 19:22		263769	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	10/3/11 19:22		263769	
1,1,2-Trichloroethane	500	U	500	23	100	NA	10/3/11 19:22		263769	
1,1,2-Trichloro-1,2,2-trifluoroethane	**12000**		500	31	100	NA	10/3/11 19:22		263769	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	10/3/11 19:22		263769	
1,1-Dichloroethene (1,1-DCE)	**41**	I	500	29	100	NA	10/3/11 19:22		263769	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	10/3/11 19:22		263769	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	10/3/11 19:22		263769	
1,2-Dibromoethane	500	U	500	20	100	NA	10/3/11 19:22		263769	
1,2-Dichlorobenzene	500	U	500	20	100	NA	10/3/11 19:22		263769	
1,2-Dichloroethane	500	U	500	20	100	NA	10/3/11 19:22		263769	
1,2-Dichloropropane	500	U	500	29	100	NA	10/3/11 19:22		263769	
1,3-Dichlorobenzene	500	U	500	20	100	NA	10/3/11 19:22		263769	
1,4-Dichlorobenzene	500	U	500	20	100	NA	10/3/11 19:22		263769	
n-Butanol	**2700**	I	25000	1100	100	NA	10/3/11 19:22		263769	
2-Butanone (MEK)	1000	U	1000	51	100	NA	10/3/11 19:22		263769	
2-Hexanone	1000	U	1000	35	100	NA	10/3/11 19:22		263769	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	10/3/11 19:22		263769	
Acetone	2000	U	2000	98	100	NA	10/3/11 19:22		263769	
Benzene	500	U	500	21	100	NA	10/3/11 19:22		263769	
Bromodichloromethane	500	U	500	20	100	NA	10/3/11 19:22		263769	
Bromoform	500	U	500	27	100	NA	10/3/11 19:22		263769	
Bromomethane	500	U	500	31	100	NA	10/3/11 19:22		263769	
Carbon Disulfide	1000	U	1000	20	100	NA	10/3/11 19:22		263769	
Carbon Tetrachloride	500	U	500	27	100	NA	10/3/11 19:22		263769	
Chlorobenzene	500	U	500	20	100	NA	10/3/11 19:22		263769	
Chloroethane	500	U	500	31	100	NA	10/3/11 19:22		263769	
Chloroform	500	U	500	22	100	NA	10/3/11 19:22		263769	
Chloromethane	500	U	500	24	100	NA	10/3/11 19:22		263769	
Cyclohexane	1000	U	1000	24	100	NA	10/3/11 19:22		263769	
Dibromochloromethane	500	U	500	20	100	NA	10/3/11 19:22		263769	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	10/3/11 19:22		263769	
Dichloromethane	500	U	500	22	100	NA	10/3/11 19:22		263769	
Ethylbenzene	500	U	500	20	100	NA	10/3/11 19:22		263769	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	10/3/11 19:22		263769	
Methyl Acetate	1000	U	1000	23	100	NA	10/3/11 19:22		263769	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1047
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0007-038.5-20110928	**Units:**	µg/L
Lab Code:	R1105400-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	10/3/11 19:22		263769	
Methylcyclohexane	1000	U	1000	25	100	NA	10/3/11 19:22		263769	
Styrene	500	U	500	20	100	NA	10/3/11 19:22		263769	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	10/3/11 19:22		263769	
Toluene	500	U	500	20	100	NA	10/3/11 19:22		263769	
Trichloroethene (TCE)	**5700**		500	23	100	NA	10/3/11 19:22		263769	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	10/3/11 19:22		263769	
Vinyl Chloride	**3700**		500	23	100	NA	10/3/11 19:22		263769	
cis-1,2-Dichloroethene	**15000**		500	20	100	NA	10/3/11 19:22		263769	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	10/3/11 19:22		263769	
m,p-Xylenes	500	U	500	20	100	NA	10/3/11 19:22		263769	
n-Butyl Acetate	500	U	500	21	100	NA	10/3/11 19:22		263769	
o-Xylene	500	U	500	20	100	NA	10/3/11 19:22		263769	
trans-1,2-Dichloroethene	**140**	I	500	20	100	NA	10/3/11 19:22		263769	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	10/3/11 19:22		263769	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	10/3/11 19:22	
Dibromofluoromethane	102	89-119	10/3/11 19:22	
Toluene-d8	104	87-121	10/3/11 19:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1047
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0007-038.5-20110928	**Units:**	µg/L
Lab Code:	R1105400-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**46**		1.0	1	NA	9/29/11 15:27		263291	
Ethene	**53**		1.0	1	NA	9/29/11 15:27		263291	
Methane	**380**		10	5	NA	9/29/11 15:37		263291	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1047
Sample Matrix:	Water	**Date Received:**	9/29/11
		Date Analyzed:	9/30/11 01:37
Sample Name:	LC34-RW0007-038.5-20110928	**Units:**	mg/L
Lab Code:	R1105400-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	263305
Data File Name:	J:\ACQUDATA\HPLC05\DATA\092911\X0006485.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**260**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**250**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**18**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1130
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0008-052.0-20110928		
Lab Code:	R1105400-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**271**		mg/L	2.0	1	NA	10/4/11 09:00	
Bromide	300.0	**2.8**		mg/L	1.0	10	NA	9/29/11 18:53	
Carbon, Total Organic (TOC), Average	9060A	**64**		mg/L	10	10	NA	9/30/11 14:54	
Chloride	300.0	**633**		mg/L	20	100	NA	9/30/11 12:35	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/10/11 13:58	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	9/29/11 18:53	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	9/30/11 12:35	*
Sulfate	300.0	**13.4**		mg/L	2.0	10	NA	9/29/11 18:53	
Sulfide, Total	SM 4500-S2- F	**14.0**		mg/L	1.0	1	NA	9/30/11 12:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1130
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0008-052.0-20110928 Dissolved		
Lab Code:	R1105400-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/ 3/11	10/5/11 21:38	
Iron, Dissolved	6010C	**140**		µg/L	100	1	10/ 3/11	10/5/11 21:38	
Manganese, Dissolved	6010C	**16**		µg/L	10	1	10/ 3/11	10/5/11 21:38	

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1130
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0008-052.0-20110928	**Units:**	µg/L
Lab Code:	R1105400-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.2	5	NA	10/3/11 19:52		263769	
1,1,2,2-Tetrachloroethane	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
1,1,2-Trichloroethane	25	U	25	1.2	5	NA	10/3/11 19:52		263769	
1,1,2-Trichloro-1,2,2-trifluoroethane	**590**		25	1.6	5	NA	10/3/11 19:52		263769	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
1,1-Dichloroethene (1,1-DCE)	**3.1**	I	25	1.5	5	NA	10/3/11 19:52		263769	
1,2,4-Trichlorobenzene	25	U	25	1.3	5	NA	10/3/11 19:52		263769	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	5	NA	10/3/11 19:52		263769	
1,2-Dibromoethane	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
1,2-Dichlorobenzene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
1,2-Dichloroethane	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
1,2-Dichloropropane	25	U	25	1.5	5	NA	10/3/11 19:52		263769	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
n-Butanol	1300	U	1300	53	5	NA	10/3/11 19:52		263769	
2-Butanone (MEK)	50	U	50	2.6	5	NA	10/3/11 19:52		263769	
2-Hexanone	50	U	50	1.8	5	NA	10/3/11 19:52		263769	
4-Methyl-2-pentanone	50	U	50	1.4	5	NA	10/3/11 19:52		263769	
Acetone	100	U	100	4.9	5	NA	10/3/11 19:52		263769	
Benzene	25	U	25	1.1	5	NA	10/3/11 19:52		263769	
Bromodichloromethane	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Bromoform	25	U	25	1.4	5	NA	10/3/11 19:52		263769	
Bromomethane	25	U	25	1.6	5	NA	10/3/11 19:52		263769	
Carbon Disulfide	**1.1**	I	50	1.0	5	NA	10/3/11 19:52		263769	
Carbon Tetrachloride	25	U	25	1.4	5	NA	10/3/11 19:52		263769	
Chlorobenzene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Chloroethane	25	U	25	1.6	5	NA	10/3/11 19:52		263769	
Chloroform	25	U	25	1.1	5	NA	10/3/11 19:52		263769	
Chloromethane	25	U	25	1.2	5	NA	10/3/11 19:52		263769	
Cyclohexane	50	U	50	1.2	5	NA	10/3/11 19:52		263769	
Dibromochloromethane	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	5	NA	10/3/11 19:52		263769	
Dichloromethane	25	U	25	1.1	5	NA	10/3/11 19:52		263769	
Ethylbenzene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Methyl Acetate	50	U	50	1.2	5	NA	10/3/11 19:52		263769	

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1130
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0008-052.0-20110928	**Units:**	µg/L
Lab Code:	R1105400-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Methylcyclohexane	50	U	50	1.3	5	NA	10/3/11 19:52		263769	
Styrene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Tetrachloroethene (PCE)	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Toluene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Trichloroethene (TCE)	**1100**		50	2.4	10	NA	10/4/11 15:31		263945	
Trichlorofluoromethane (CFC 11)	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
Vinyl Chloride	**410**		25	1.2	5	NA	10/3/11 19:52		263769	
cis-1,2-Dichloroethene	**1100**		50	2.0	10	NA	10/4/11 15:31		263945	
cis-1,3-Dichloropropene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
m,p-Xylenes	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
n-Butyl Acetate	25	U	25	1.1	5	NA	10/3/11 19:52		263769	
o-Xylene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	
trans-1,2-Dichloroethene	**7.6**	I	25	1.0	5	NA	10/3/11 19:52		263769	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	10/3/11 19:52		263769	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	10/3/11 19:52	
Dibromofluoromethane	103	89-119	10/3/11 19:52	
Toluene-d8	104	87-121	10/3/11 19:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1130
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-RW0008-052.0-20110928	**Units:**	µg/L
Lab Code:	R1105400-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**5.6**		5.0	5	NA	9/29/11 16:06		263291	
Ethene	**28**		5.0	5	NA	9/29/11 16:06		263291	
Methane	**410**		10	5	NA	9/29/11 16:06		263291	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11 1130
Sample Matrix:	Water	**Date Received:**	9/29/11
		Date Analyzed:	9/30/11 03:40
Sample Name:	LC34-RW0008-052.0-20110928	**Units:**	mg/L
Lab Code:	R1105400-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	263305
Data File Name:	J:\ACQUDATA\HPLC05\DATA\092911\X0006487.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**140**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**12**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**2.2**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-TB-20110928	**Units:**	µg/L
Lab Code:	R1105400-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/3/11 20:22		263769	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/3/11 20:22		263769	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/3/11 20:22		263769	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/3/11 20:22		263769	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/3/11 20:22		263769	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/3/11 20:22		263769	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/3/11 20:22		263769	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
n-Butanol	250	U	250	11	1	NA	10/3/11 20:22		263769	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/3/11 20:22		263769	
2-Hexanone	10	U	10	0.35	1	NA	10/3/11 20:22		263769	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/3/11 20:22		263769	
Acetone	**1.3**	I	20	0.98	1	NA	10/3/11 20:22		263769	
Benzene	5.0	U	5.0	0.21	1	NA	10/3/11 20:22		263769	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Bromoform	5.0	U	5.0	0.27	1	NA	10/3/11 20:22		263769	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/3/11 20:22		263769	
Carbon Disulfide	10	U	10	0.20	1	NA	10/3/11 20:22		263769	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/3/11 20:22		263769	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/3/11 20:22		263769	
Chloroform	5.0	U	5.0	0.22	1	NA	10/3/11 20:22		263769	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/3/11 20:22		263769	
Cyclohexane	10	U	10	0.24	1	NA	10/3/11 20:22		263769	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/3/11 20:22		263769	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/3/11 20:22		263769	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Methyl Acetate	10	U	10	0.23	1	NA	10/3/11 20:22		263769	

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	9/28/11
Sample Matrix:	Water	**Date Received:**	9/29/11
Sample Name:	LC34-TB-20110928	**Units:**	µg/L
Lab Code:	R1105400-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Methylcyclohexane	10	U	10	0.25	1	NA	10/3/11 20:22		263769	
Styrene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Toluene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/3/11 20:22		263769	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/3/11 20:22		263769	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/3/11 20:22		263769	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/3/11 20:22		263769	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	10/3/11 20:22	
Dibromofluoromethane	100	89-119	10/3/11 20:22	
Toluene-d8	104	87-121	10/3/11 20:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105400-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	10/4/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	9/29/11 15:58	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	9/30/11 12:54	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	9/30/11 09:23	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	10/10/11 12:50	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	9/29/11 15:58	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	9/30/11 09:23	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	9/29/11 15:58	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	9/30/11 12:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105400-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/ 3/11	10/5/11 18:31	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/ 3/11	10/5/11 18:31	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/ 3/11	10/5/11 18:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105400-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/ 3/11	10/5/11 18:36	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/ 3/11	10/5/11 18:36	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/ 3/11	10/5/11 18:36	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109870-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/3/11 13:20		263769	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/3/11 13:20		263769	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/3/11 13:20		263769	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/3/11 13:20		263769	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/3/11 13:20		263769	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/3/11 13:20		263769	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/3/11 13:20		263769	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
n-Butanol	250	U	250	11	1	NA	10/3/11 13:20		263769	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/3/11 13:20		263769	
2-Hexanone	10	U	10	0.35	1	NA	10/3/11 13:20		263769	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/3/11 13:20		263769	
Acetone	20	U	20	0.98	1	NA	10/3/11 13:20		263769	
Benzene	5.0	U	5.0	0.21	1	NA	10/3/11 13:20		263769	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Bromoform	5.0	U	5.0	0.27	1	NA	10/3/11 13:20		263769	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/3/11 13:20		263769	
Carbon Disulfide	10	U	10	0.20	1	NA	10/3/11 13:20		263769	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/3/11 13:20		263769	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/3/11 13:20		263769	
Chloroform	5.0	U	5.0	0.22	1	NA	10/3/11 13:20		263769	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/3/11 13:20		263769	
Cyclohexane	10	U	10	0.24	1	NA	10/3/11 13:20		263769	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/3/11 13:20		263769	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/3/11 13:20		263769	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Methyl Acetate	10	U	10	0.23	1	NA	10/3/11 13:20		263769	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109870-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Methylcyclohexane	10	U	10	0.25	1	NA	10/3/11 13:20		263769	
Styrene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Toluene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/3/11 13:20		263769	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/3/11 13:20		263769	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/3/11 13:20		263769	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/3/11 13:20		263769	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	10/3/11 13:20	
Dibromofluoromethane	100	89-119	10/3/11 13:20	
Toluene-d8	104	87-121	10/3/11 13:20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109920-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/4/11 13:31		263945	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/4/11 13:31		263945	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/4/11 13:31		263945	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/4/11 13:31		263945	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/4/11 13:31		263945	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/4/11 13:31		263945	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/4/11 13:31		263945	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
n-Butanol	250	U	250	11	1	NA	10/4/11 13:31		263945	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/4/11 13:31		263945	
2-Hexanone	10	U	10	0.35	1	NA	10/4/11 13:31		263945	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/4/11 13:31		263945	
Acetone	20	U	20	0.98	1	NA	10/4/11 13:31		263945	
Benzene	5.0	U	5.0	0.21	1	NA	10/4/11 13:31		263945	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Bromoform	5.0	U	5.0	0.27	1	NA	10/4/11 13:31		263945	
Bromomethane	**0.32**	I	5.0	0.31	1	NA	10/4/11 13:31		263945	
Carbon Disulfide	10	U	10	0.20	1	NA	10/4/11 13:31		263945	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/4/11 13:31		263945	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/4/11 13:31		263945	
Chloroform	5.0	U	5.0	0.22	1	NA	10/4/11 13:31		263945	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/4/11 13:31		263945	
Cyclohexane	10	U	10	0.24	1	NA	10/4/11 13:31		263945	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/4/11 13:31		263945	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/4/11 13:31		263945	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Methyl Acetate	10	U	10	0.23	1	NA	10/4/11 13:31		263945	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109920-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Methylcyclohexane	10	U	10	0.25	1	NA	10/4/11 13:31		263945	
Styrene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Toluene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/4/11 13:31		263945	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/4/11 13:31		263945	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/4/11 13:31		263945	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/4/11 13:31		263945	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/4/11 13:31	
Dibromofluoromethane	103	89-119	10/4/11 13:31	
Toluene-d8	107	87-121	10/4/11 13:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1109782-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	9/29/11 11:26		263291	
Ethene	1.0	U	1.0	1	NA	9/29/11 11:26		263291	
Methane	2.0	U	2.0	1	NA	9/29/11 11:26		263291	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105400
Project:	LC34 ESTCP PED TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/29/11 12:15
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1109692-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	263305
Data File Name:	J:\ACQUDATA\HPLC05\DATA\092911\X0006472.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 9/30/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105400-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1105400-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	6.50	6.4	102	6.54	6.4	103	56 - 138	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 9/29/11 - 10/10/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105400-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.00	1.00	100	90 - 110
Chloride	300.0	2.03	2.00	102	90 - 110
Iodide	300.0	0.958	1.00	96	90 - 110
Nitrate as Nitrogen	300.0	1.06	1.00	106	90 - 110
Sulfate	300.0	2.02	2.00	101	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.5	20.0	98	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.0	10.0	100	86 - 117
Nitrite as Nitrogen	300.0	1.04	1.0	104	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 10/ 5/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105400-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	38.4	40	96	80 - 120
Iron, Dissolved	6010C	1030	1000	103	80 - 120
Manganese, Dissolved	6010C	499	500	100	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 10/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 263769

Analyte Name	Lab Control Sample RQ1109870-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.9	20.0	95	72 - 128
1,1,2,2-Tetrachloroethane	19.4	20.0	97	72 - 131
1,1,2-Trichloroethane	19.2	20.0	96	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.7	20.0	89	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.8	20.0	99	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.0	20.0	90	72 - 129
1,2,4-Trichlorobenzene	19.2	20.0	96	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.0	20.0	95	62 - 131
1,2-Dibromoethane	19.5	20.0	97	78 - 125
1,2-Dichlorobenzene	20.4	20.0	102	79 - 124
1,2-Dichloroethane	19.5	20.0	98	73 - 127
1,2-Dichloropropane	19.6	20.0	98	80 - 123
1,3-Dichlorobenzene	20.1	20.0	101	78 - 124
1,4-Dichlorobenzene	20.1	20.0	100	78 - 123
n-Butanol	831	1000	83	70 - 130
2-Butanone (MEK)	18.2	20.0	91	60 - 133
2-Hexanone	19.8	20.0	99	61 - 131
4-Methyl-2-pentanone	19.9	20.0	99	61 - 132
Acetone	19.1	20.0	95	54 - 139
Benzene	19.3	20.0	96	78 - 121
Bromodichloromethane	20.2	20.0	101	80 - 125
Bromoform	20.6	20.0	103	68 - 130
Bromomethane	22.1	20.0	110	57 - 144
Carbon Disulfide	19.8	20.0	99	52 - 140
Carbon Tetrachloride	19.1	20.0	96	68 - 133
Chlorobenzene	19.9	20.0	100	80 - 121
Chloroethane	21.5	20.0	107	71 - 130
Chloroform	19.6	20.0	98	78 - 125
Chloromethane	19.7	20.0	99	61 - 138
Cyclohexane	17.9	20.0	89	57 - 126
Dibromochloromethane	20.4	20.0	102	78 - 133
Dichlorodifluoromethane (CFC 12)	19.5	20.0	97	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 10/ 3/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 263769

Lab Control Sample
RQ1109870-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.1	20.0	96	75 - 125
Ethylbenzene	19.9	20.0	100	78 - 123
Isopropylbenzene (Cumene)	21.7	20.0	109	73 - 133
Methyl Acetate	18.9	20.0	94	57 - 157
Methyl tert-Butyl Ether	18.5	20.0	92	75 - 126
Methylcyclohexane	18.1	20.0	90	61 - 125
Styrene	20.6	20.0	103	80 - 132
Tetrachloroethene (PCE)	19.8	20.0	99	72 - 131
Toluene	19.7	20.0	98	78 - 122
Trichloroethene (TCE)	20.4	20.0	102	74 - 127
Trichlorofluoromethane (CFC 11)	20.5	20.0	102	69 - 141
Vinyl Chloride	21.3	20.0	107	72 - 138
cis-1,2-Dichloroethene	19.7	20.0	98	78 - 122
cis-1,3-Dichloropropene	19.3	20.0	96	77 - 125
m,p-Xylenes	40.6	40.0	101	79 - 126
n-Butyl Acetate	18.1	20.0	90	31 - 144
o-Xylene	20.2	20.0	101	77 - 118
trans-1,2-Dichloroethene	18.9	20.0	94	75 - 121
trans-1,3-Dichloropropene	19.2	20.0	96	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 10/ 4/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 263945

Analyte Name	Lab Control Sample RQ1109920-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.8	20.0	84	72 - 128
1,1,2,2-Tetrachloroethane	19.3	20.0	97	72 - 131
1,1,2-Trichloroethane	18.5	20.0	92	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.7	20.0	79	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.4	20.0	97	76 - 124
1,1-Dichloroethene (1,1-DCE)	15.9	20.0	79	72 - 129
1,2,4-Trichlorobenzene	18.5	20.0	92	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.6	20.0	83	62 - 131
1,2-Dibromoethane	18.2	20.0	91	78 - 125
1,2-Dichlorobenzene	17.9	20.0	89	79 - 124
1,2-Dichloroethane	19.7	20.0	99	73 - 127
1,2-Dichloropropane	19.0	20.0	95	80 - 123
1,3-Dichlorobenzene	17.4	20.0	87	78 - 124
1,4-Dichlorobenzene	17.7	20.0	88	78 - 123
n-Butanol	1050	1000	104	70 - 130
2-Butanone (MEK)	19.5	20.0	98	60 - 133
2-Hexanone	19.0	20.0	95	61 - 131
4-Methyl-2-pentanone	19.7	20.0	98	61 - 132
Acetone	20.8	20.0	104	54 - 139
Benzene	17.4	20.0	87	78 - 121
Bromodichloromethane	19.2	20.0	96	80 - 125
Bromoform	17.8	20.0	89	68 - 130
Bromomethane	21.0	20.0	105	57 - 144
Carbon Disulfide	19.9	20.0	99	52 - 140
Carbon Tetrachloride	16.4	20.0	82	68 - 133
Chlorobenzene	17.4	20.0	87	80 - 121
Chloroethane	20.2	20.0	101	71 - 130
Chloroform	18.6	20.0	93	78 - 125
Chloromethane	18.9	20.0	94	61 - 138
Cyclohexane	21.7	20.0	109	57 - 126
Dibromochloromethane	18.7	20.0	93	78 - 133
Dichlorodifluoromethane (CFC 12)	17.2	20.0	86	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 10/ 4/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 263945

Analyte Name	Lab Control Sample RQ1109920-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.1	20.0	91	75 - 125
Ethylbenzene	17.0	20.0	85	78 - 123
Isopropylbenzene (Cumene)	18.6	20.0	93	73 - 133
Methyl Acetate	21.7	20.0	108	57 - 157
Methyl tert-Butyl Ether	18.7	20.0	94	75 - 126
Methylcyclohexane	22.3	20.0	111	61 - 125
Styrene	18.1	20.0	91	80 - 132
Tetrachloroethene (PCE)	15.8	20.0	79	72 - 131
Toluene	17.4	20.0	87	78 - 122
Trichloroethene (TCE)	16.5	20.0	83	74 - 127
Trichlorofluoromethane (CFC 11)	18.7	20.0	93	69 - 141
Vinyl Chloride	19.8	20.0	99	72 - 138
cis-1,2-Dichloroethene	18.1	20.0	90	78 - 122
cis-1,3-Dichloropropene	18.1	20.0	91	77 - 125
m,p-Xylenes	34.5	40.0	86	79 - 126
n-Butyl Acetate	20.5	20.0	103	31 - 144
o-Xylene	17.5	20.0	87	77 - 118
trans-1,2-Dichloroethene	17.1	20.0	85	75 - 121
trans-1,3-Dichloropropene	18.0	20.0	90	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 9/29/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 263291

Analyte Name	Lab Control Sample RQ1109782-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1109782-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	29.4	26.0	113	27.7	26.0	106	56 - 148	6	30
Ethene	24.5	24.3	101	23.4	24.3	96	58 - 155	5	30
Methane	29.8	26.2	114	28.1	26.2	107	55 - 150	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 ESTCP PED TR0272
Sample Matrix: Water

Service Request: R1105400
Date Analyzed: 9/29/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 263305

	Lab Control Sample RQ1109692-02			Duplicate Lab Control Sample RQ1109692-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	0.960	1.00	96	0.980	1.00	98	70 - 130	2	30
Acetic Acid	9.75	10.0	98	9.77	10.0	98	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.80	10.0	98	10.1	10.0	101	78 - 113	3	30
Lactic Acid	8.65	9.97	87	8.74	9.97	88	61 - 109	1	30
Propionic Acid	10.1	9.97	102	9.58	9.97	96	80 - 125	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20110928	09/28/11	1047	-001, 002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20110928	09/28/11	1130	003, 004	W	15	3	2	1	3	1	3	1	1		
LC34-TB-20110928	NA	NA	-005	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Invoice Information

P.O. #

Bill to: TR0272A

Comments/Special Instructions:

Please filter dissolved metals in lab.

Containers for VOCs (8260C) were triple rinsed in field with DI Water to remove HCl preservatives.

R1105400
GeoSyntec Consultants
LC34 ESTCP PED TR0272

RELINQUISHED BY:

Signature:

Printed Name: Joseph Bartlett

Firm: Geosyntec Consultants

Date/Time: 09/28/11 — 1630

RECEIVED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Daniel Ward

Firm: CAS

Date/Time: 9/29/11 / 0950

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1105400

Cooler received on 9/29/11 by: DPW **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did ~~VOA~~ vials, Alkalinity, or Sulfide have significant* air bubbles?	~~YES~~	NO	N/A		
5.	Were ~~Ice~~ or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	CAS/ROC, CLIENT				
7.	Temperature of cooler(s) upon receipt:	2.7				
	Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 9/29/11/1015

Thermometer ID: IR GUN#3 / ~~IR GUN#4~~ Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 9/29/11

Cooler Breakdown: Date: 9/29/11 Time: 1201 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	~~YES~~	NO	
2.	Did all bottle labels and tags agree with custody papers?	~~YES~~	NO	
3.	Were correct containers used for the tests indicated?	~~YES~~	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid					
	$Na_2S_2O_3$	-	-	WC103098C	5/12				
	Zn Aceta	-	-						
	HCl	*	*	4110060	8/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-132-001, 1-087-002, 082911-21, 072511-201

Other Comments: * 2 vials for the Trip Blank

PC Secondary Review: KB 10/14/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

October 31, 2011 Service Request No: R1105742

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 10/13/11/ TR0272A

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on October 14, 2011. For your reference, these analyses have been assigned our service request number **R1105742**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1105742
Project:	ESTCP PED LC34/ TR0272 10/13/11	**Date Received:**	10/14/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 10/13/11 and were received for analysis at Columbia Analytical Services on 10/14/11 via a national courier. The samples were received at a cooler temperature of 2.4°C within the guidelines of 0-6°C.

Organic Compounds

Two (2) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C, Organic Acids by HPLC, and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples for 8260C except for the %D for Bromomethane which was outside the ±20%D limits at -27.7% on the 10/17/11 analytical run. Any hits for this compound associated with the samples should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD), (RSK & Organic Acids) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

The Retention Time (RT) for ethane is within the proper window for this compound however, the peak is off in time relative to methane and ethylene. As a result, ethane results may be slightly biased.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Batch QC is included in the report. All LCS and LCSD (Sulfide) recoveries were within QC limits.

Approved by Karen Burches **Date** 10/31/11

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0 The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

All samples were analyzed within holding times for these analyses.

All Laboratory Method Blanks were free from contamination.

No other problems were encountered during the analysis of these samples.

Approved by Karen Burnhee Date 10/31/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1105742

Lab ID	Client ID
R1105742-001	LC34-RW0007-038.5-20111013
R1105742-002	LC34-RW0007-038.5-20111013 Dissolved
R1105742-003	LC34-RW0008-052.0-20111013
R1105742-004	LC34-RW0008-052.0-20111013 Dissolved

Columbia Analytical Services™

REPORT QUALIFIERS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% (25% for CLP) difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD ELAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 0944
Sample Matrix:	Water	**Date Received:**	10/14/11
Sample Name:	LC34-RW0007-038.5-20111013		
Lab Code:	R1105742-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**468**		mg/L	2.0	1	NA	10/21/11 09:00	
Bromide	300.0	**17.8**		mg/L	1.0	10	NA	10/14/11 17:47	
Carbon, Total Organic (TOC), Average	9060A	**262**		mg/L	10	10	NA	10/15/11 14:56	
Chloride	300.0	**433**		mg/L	20	100	NA	10/14/11 18:00	
Iodide	300.0	**14.5**		mg/L	2.0	10	NA	10/27/11 11:08	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/14/11 17:47	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/14/11 18:00	
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	10/14/11 17:47	
Sulfide, Total	SM 4500-S2- F	**16.9**		mg/L	0.93	1	NA	10/14/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 0944
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/17/11 14:21
Sample Name:	LC34-RW0007-038.5-20111013	**Units:**	µg/L
Lab Code:	R1105742-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	265559
Data File Name:	J:\ACQUDATA\msvoa10\data\101711\D5282.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**39**	I	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	**2900**	I	25000	1100	
78-93-3	2-Butanone (MEK)	1000	U	1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	2000	U	2000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	500	U	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	1000	U	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	500	U	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 0944
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/17/11 14:21
Sample Name:	LC34-RW0007-038.5-20111013	**Units:**	µg/L
Lab Code:	R1105742-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	265559
Data File Name:	J:\ACQUDATA\msvoa10\data\101711\D5282.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	**4300**		500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**4300**		500	23	
156-59-2	cis-1,2-Dichloroethene	**15000**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	500	U	500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**190**	I	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	10/17/11 14:21	
Dibromofluoromethane	102	89-119	10/17/11 14:21	
Toluene-d8	104	87-121	10/17/11 14:21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 0944
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/18/11 09:50
Sample Name:	LC34-RW0007-038.5-20111013	**Units:**	µg/L
Lab Code:	R1105742-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	265794
Data File Name:	star277.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**48**		5.0	
74-85-1	Ethene	**86**		5.0	
74-82-8	Methane	**420**		10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 0944
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/17/11 18:59
Sample Name:	LC34-RW0007-038.5-20111013	**Units:**	mg/L
Lab Code:	R1105742-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	265510
Data File Name:	J:\ACQUDATA\HPLC05\DATA\101711\X0006510.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**280**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**300**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**22**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 0944
Sample Matrix:	Water	**Date Received:**	10/14/11
Sample Name:	LC34-RW0007-038.5-20111013 Dissolved		
Lab Code:	R1105742-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/17/11	10/22/11 00:31	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/17/11	10/22/11 00:31	
Manganese, Dissolved	6010C	**23**		µg/L	10	1	10/17/11	10/22/11 00:31	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 1022
Sample Matrix:	Water	**Date Received:**	10/14/11
Sample Name:	LC34-RW0008-052.0-20111013		
Lab Code:	R1105742-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**287**		mg/L	2.0	1	NA	10/21/11 09:00	
Bromide	300.0	**4.2**		mg/L	1.0	10	NA	10/14/11 18:12	
Carbon, Total Organic (TOC), Average	9060A	**61**		mg/L	10	10	NA	10/15/11 15:35	
Chloride	300.0	**624**		mg/L	20	100	NA	10/14/11 18:25	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 11:34	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/14/11 18:12	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/14/11 18:25	
Sulfate	300.0	**15.9**		mg/L	2.0	10	NA	10/14/11 18:12	
Sulfide, Total	SM 4500-S2- F	**14.5**		mg/L	0.94	1	NA	10/14/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 1022
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/17/11 14:51
Sample Name:	LC34-RW0008-052.0-20111013	**Units:**	µg/L
Lab Code:	R1105742-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	265559
Data File Name:	J:\ACQUDATA\msvoa10\data\101711\D5283.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	760		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	200	U	200	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 1022
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/17/11 14:51
Sample Name:	LC34-RW0008-052.0-20111013	**Units:**	µg/L
Lab Code:	R1105742-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	265559
Data File Name:	J:\ACQUDATA\msvoa10\data\101711\D5283.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**1300**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**610**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1300**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**10**	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	10/17/11 14:51	
Dibromofluoromethane	102	89-119	10/17/11 14:51	
Toluene-d8	104	87-121	10/17/11 14:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 1022
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/18/11 10:01
Sample Name:	LC34-RW0008-052.0-20111013	**Units:**	µg/L
Lab Code:	R1105742-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	265794
Data File Name:	star278.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	7.4		5.0	
74-85-1	Ethene	71		5.0	
74-82-8	Methane	460		10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 1022
Sample Matrix:	Water	**Date Received:**	10/14/11
		Date Analyzed:	10/18/11 01:08
Sample Name:	LC34-RW0008-052.0-20111013	**Units:**	mg/L
Lab Code:	R1105742-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	265510
Data File Name:	J:\ACQUDATA\HPLC05\DATA\101711\X0006516.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**130**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**16**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.8**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	10/13/11 1022
Sample Matrix:	Water	**Date Received:**	10/14/11
Sample Name:	LC34-RW0008-052.0-20111013 Dissolved		
Lab Code:	R1105742-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/17/11	10/22/11 00:37	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/17/11	10/22/11 00:37	
Manganese, Dissolved	6010C	**15**		µg/L	10	1	10/17/11	10/22/11 00:37	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105742-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	10/21/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	10/14/11 16:45	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	10/15/11 10:17	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	10/14/11 16:45	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	10/27/11 10:33	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/14/11 16:45	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/14/11 16:45	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	10/14/11 16:45	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	10/14/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105742-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/17/11	10/21/11 21:30	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/17/11	10/21/11 21:30	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/17/11	10/21/11 21:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1105742-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/17/11	10/21/11 21:36	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/17/11	10/21/11 21:36	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/17/11	10/21/11 21:36	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	10/17/11 12:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1110420-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	265559
Data File Name:	J:\ACQUDATA\msvoa10\data\101711\D5278.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	20	U	20	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	10/17/11 12:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1110420-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	265559
Data File Name:	J:\ACQUDATA\msvoa10\data\101711\D5278.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	10/17/11 12:22	
Dibromofluoromethane	101	89-119	10/17/11 12:22	
Toluene-d8	104	87-121	10/17/11 12:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	10/18/11 08:35
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1110434-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	265794
Data File Name:	star275.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1105742
Project:	ESTCP PED LC34 10/13/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	10/17/11 11:24
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1110346-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	265510
Data File Name:	J:\ACQUDATA\HPLC05\DATA\101711\X0006502.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 10/13/11/ TR0272A
Sample Matrix: Water

Service Request: R1105742
Date Analyzed: 10/14/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105742-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1105742-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	6.42	6.4	100	6.62	6.4	103	56 - 138	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 10/13/11/ TR0272A
Sample Matrix: Water

Service Request: R1105742
Date Analyzed: 10/14/11 - 10/27/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105742-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.954	1.00	95	90 - 110
Chloride	300.0	2.03	2.00	101	90 - 110
Iodide	300.0	0.940	1.00	94	90 - 110
Nitrate as Nitrogen	300.0	1.01	1.00	101	90 - 110
Sulfate	300.0	1.98	2.00	99	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.9	20.0	100	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.82	10.0	98	86 - 117
Nitrite as Nitrogen	300.0	0.999	1.0	100	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 10/13/11/ TR0272A
Sample Matrix: Water

Service Request: R1105742
Date Analyzed: 10/21/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1105742-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	36.7	40	92	80 - 120
Iron, Dissolved	6010C	1000	1000	100	80 - 120
Manganese, Dissolved	6010C	495	500	99	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 10/13/11/ TR0272A
Sample Matrix: Water

Service Request: R1105742
Date Analyzed: 10/17/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 265559

Lab Control Sample
RQ1110420-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.8	20.0	94	72 - 128
1,1,2,2-Tetrachloroethane	17.1	20.0	85	72 - 131
1,1,2-Trichloroethane	19.7	20.0	98	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.7	20.0	94	68 - 136
1,1-Dichloroethane (1,1-DCA)	18.7	20.0	93	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.8	20.0	94	72 - 129
1,2,4-Trichlorobenzene	18.1	20.0	91	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.3	20.0	91	62 - 131
1,2-Dibromoethane	18.1	20.0	91	78 - 125
1,2-Dichlorobenzene	18.4	20.0	92	79 - 124
1,2-Dichloroethane	19.1	20.0	96	73 - 127
1,2-Dichloropropane	18.9	20.0	94	80 - 123
1,3-Dichlorobenzene	18.4	20.0	92	78 - 124
1,4-Dichlorobenzene	18.0	20.0	90	78 - 123
n-Butanol	1070	1000	107	70 - 130
2-Butanone (MEK)	16.9	20.0	85	60 - 133
2-Hexanone	16.9	20.0	84	61 - 131
4-Methyl-2-pentanone	17.9	20.0	90	61 - 132
Acetone	18.2	20.0	91	54 - 139
Benzene	18.8	20.0	94	78 - 121
Bromodichloromethane	19.8	20.0	99	80 - 125
Bromoform	20.4	20.0	102	68 - 130
Bromomethane	13.2	20.0	66	57 - 144
Carbon Disulfide	18.9	20.0	94	52 - 140
Carbon Tetrachloride	20.3	20.0	102	68 - 133
Chlorobenzene	18.7	20.0	93	80 - 121
Chloroethane	19.5	20.0	97	71 - 130
Chloroform	19.3	20.0	96	78 - 125
Chloromethane	16.6	20.0	83	61 - 138
Cyclohexane	13.4	20.0	67	57 - 126
Dibromochloromethane	20.0	20.0	100	78 - 133
Dichlorodifluoromethane (CFC 12)	16.7	20.0	84	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 10/13/11/ TR0272A
Sample Matrix: Water

Service Request: R1105742
Date Analyzed: 10/17/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 265559

Lab Control Sample
RQ1110420-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.5	20.0	92	75 - 125
Ethylbenzene	18.8	20.0	94	78 - 123
Isopropylbenzene (Cumene)	20.6	20.0	103	73 - 133
Methyl Acetate	16.6	20.0	83	57 - 157
Methyl tert-Butyl Ether	18.2	20.0	91	75 - 126
Methylcyclohexane	15.5	20.0	77	61 - 125
Styrene	19.3	20.0	96	80 - 132
Tetrachloroethene (PCE)	19.6	20.0	98	72 - 131
Toluene	19.4	20.0	97	78 - 122
Trichloroethene (TCE)	20.1	20.0	101	74 - 127
Trichlorofluoromethane (CFC 11)	20.6	20.0	103	69 - 141
Vinyl Chloride	19.1	20.0	96	72 - 138
cis-1,2-Dichloroethene	19.9	20.0	99	78 - 122
cis-1,3-Dichloropropene	18.5	20.0	92	77 - 125
m,p-Xylenes	38.2	40.0	95	79 - 126
n-Butyl Acetate	14.8	20.0	74	31 - 144
o-Xylene	19.2	20.0	96	77 - 118
trans-1,2-Dichloroethene	18.9	20.0	94	75 - 121
trans-1,3-Dichloropropene	18.8	20.0	94	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 10/13/11/ TR0272A
Sample Matrix: Water

Service Request: R1105742
Date Analyzed: 10/18/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 265794

Analyte Name	Lab Control Sample RQ1110434-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1110434-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	27.5	26.0	106	26.3	26.0	101	56 - 148	4	30
Ethene	22.8	24.3	94	23.3	24.3	96	58 - 155	2	30
Methane	27.3	26.2	104	26.4	26.2	100	55 - 150	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 10/13/11/ TR0272A
Sample Matrix: Water

Service Request: R1105742
Date Analyzed: 10/17/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 265510

	Lab Control Sample RQ1110346-02			Duplicate Lab Control Sample RQ1110346-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.04	1.00	104	1.04	1.00	104	70 - 130	<1	30
Acetic Acid	9.97	10.0	100	9.94	10.0	99	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.12	10.0	91	10.4	10.0	104	78 - 113	13	30
Lactic Acid	8.77	9.97	88	8.92	9.97	89	61 - 109	2	30
Propionic Acid	10.3	9.97	103	10.3	9.97	104	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20111013	10/13/11	0944	-001 -002	W	15	3	2	1	2	1	3	1	1		
LC34-RW0008-052.0-20111013	10/13/11	1022	-003; 004	W	15	3	2	1	3	1	3	1	1		
~~LC34-TB-2011~~ 3B															

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1105742
GeoSyntec Consultants
ESTCP PED LC34 10/13/11

RELINQUISHED BY:

Signature:

Printed Name: JOSEPH BARTLETT

Firm: Geosyntec

Date/Time: 10/13/11 – 1630

RECEIVED BY:

Signature:

Printed Name: FedEx

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Daniel Ward

Firm: CAS

Date/Time: 10/14/11 / 0848

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number 1105742

Cooler received on 10/14/11 by: DPW **COURIER:** CAS UPS ~~FEDEX~~ VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	~~YES~~	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	~~YES~~	NO			
3.	Did all bottles arrive in good condition (unbroken)?	~~YES~~	NO			
4.	Did ~~VOA~~ vials, Alkalinity, or Sulfide have significant* air bubbles?	~~YES~~	NO	N/A ~~✓~~		
5.	Were ~~Ice~~ or **Ice packs** present?	~~YES~~	NO			
6.	Where did the bottles originate?	CA~~S~~/ROC, CLIENT				
7.	Temperature of cooler(s) upon receipt:	2.4°				
	Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 10/14/11/0950

Thermometer ID: ~~IR GUN#3~~ / IR GUN#4 Reading From: Temp Blank / ~~Sample Bottle~~

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 10/14/11

Cooler Breakdown: Date: 10/14/11 Time: 1045 by: DPW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	~~YES~~	NO
2.	Did all bottle labels and tags agree with custody papers?	~~YES~~	NO
3.	Were correct containers used for the tests indicated?	~~YES~~	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		~~N/A~~

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4			LC103588D	8/12
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*	4110060	8/12

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-087-002, 1-132-001, 053011-2V

Other Comments: ~~✓~~ 1 vial for LC34-RW0007 CRSK175)

PC Secondary Review: KB 10/31/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 3.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

November 16, 2011 Service Request No: R1106024

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272 10/25-27/11

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory between October 26, 2011 and October 28, 2011. For your reference, these analyses have been assigned our service request number **R1106024**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1106024
Project:	ESTCP PED LC34/ TR0272 10/25-27/11	**Date Received:**	10/26-28/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Thirty-six (36) water samples including three (3) Trip Blanks were collected by the client over the period from 10/25-27/11 and were received for analysis at Columbia Analytical Services from 10/26-28/11 via a national courier The samples were received at a cooler temperature range from 1.2 - 6.0°C within the guidelines of 0-6°C. Any breakage or headspace noted upon sample receipt is noted on the Cooler Receipt and Preservation form immediately following the associated chain of custody near the end of the report.

Volatile Organic Compounds GC/MS

Thirty-six (36) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except for the Continuing Calibration Verification %D which was outside limits of ±20% for 1,1,2,2-Tetrachloroethane (-20.5%) and Bromomethane (-22.0%) on the 10/29/11analytical run. Any hits in samples associated with these hits should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Site QC is included in the report for locations LC34-BW0001B-031.5-2011025 and LC34-RW0008-052.0-2011026 (CAS #R1106024-005 and -036 respectively). All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within acceptance limits except for the following:

1,1,2-Trichloro-1,2,2-trifluoroethane (MS/MSD) outside limits low
Trichloroethene (MS/MSD) outside limits low
Cis-1,2-Dichloroethene (MS) outside limits low.

Matrix interference is suspected. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burke Date 11/17/11

Volatile Organics GC

Twenty-five (25) samples were also analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Site QC is included in the report for locations LC34-BW0001C-038.5-2011025 and LC34-BW0003E-052.5-2011027 (CAS # R1106024-007 and -046 respectively) for RSK-175 and locations LC34-IW0076-075.0-2011025, LC34-RW0007-038.5-20111026, and LC34-BW0003C-038.5-20111027 (CAS # R1106024-001,-034 and -045 respectively) for Organic Acids. All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within acceptance limits. Acetic Acid and Butanoic Acid were spiked too low to be accurately determined (less than 4X the concentration in the samples). The recoveries have been flagged as "#". The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD recoveries were all within QC limits except for n-Butanol on the 10/29/11 run which was outside limits high. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

The Laboratory Method Blanks were free from contamination except for n-Butanol on the 10/29/11 analytical run. Any affected data is flagged as "B".

No other analytical or QC problems were encountered.

Inorganic Parameters

Twenty-four (24) water samples were analyzed for Bromide and Iodide by IC method 300.0 and TOC by method 9060A. Thirteen (13) water samples were analyzed for Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0. Twelve (12) water samples were analyzed for dissolved metals by ICP method 6010C. These soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Site QC is included in the report for all analytes except Sulfide which had insufficient sample volume available for site specific analysis. An LCS and LCSD were done on this parameter. All Matrix Spike (MS) recoveries were within acceptance limits except for Sulfate MS and MSD and Chloride and Iodide MS recoveries which were outside limits low. The recoveries are flagged as "*". Matrix interference is suspected. All Relative Percent Difference (RPD) calculations were acceptable. All LCS and LCSD (Sulfide) recoveries were within QC limits.

All samples were analyzed within holding times for these analyses except for Nitrite analysis which were repeated hours outside of the 48 hour holding time for 11 of the 13 samples due to an interfering Chloride peak on the initial analysis. Only the reanalysis date has been reported. The data has been flagged as "*" for the holding time exceedences. Permission has been given by the client to run future samples by an alternative method to avoid this interference.

All Laboratory Method Blanks were free from contamination.

No other problems were encountered during the analysis of these samples.

Approved by Karen Burnhee **Date** 11/17/11

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1106024

Lab ID	Client ID
R1106024-001	LC34-IW0076-075.0-20111025
R1106024-002	LC34-IW0076-075.0-20111025 Dissolved
R1106024-003	LC34-BW0001A-024.5-20111025
R1106024-004	LC34-BW0001A-024.5-20111025 Dissolved
R1106024-005	LC34-BW0001B-031.5-20111025
R1106024-006	LC34-BW0001B-031.5-20111025 Dissolved
R1106024-007	LC34-BW0001C-038.5-20111025
R1106024-008	LC34-BW0001C-038.5-20111025 Dissolved
R1106024-009	LC34-BW0001D-045.5-20111025
R1106024-010	LC34-BW0001D-045.5-20111025 Dissolved
R1106024-011	LC34-BW0001E-052.5-20111025
R1106024-012	LC34-BW0001E-052.5-20111025 Dissolved
R1106024-013	LC34-BW0001F-059.5-20111025
R1106024-014	LC34-BW0001F-059.5-20111025 Dissolved
R1106024-015	LC34-IW0067D-040.5-20111025
R1106024-016	LC34-IW0067D1-068.0-20111025
R1106024-017	LC34-IW0070D-040.5-20111025
R1106024-018	LC34-IW0070D1-070.0-20111025
R1106024-019	LC34-IW0071D-040.5-20111025
R1106024-020	LC34-IW0071D1-070.0-20111025
R1106024-024	LC34-TB-20111025
R1106024-025	LC34-BW0002A-024.5-20111026
R1106024-026	LC34-BW0002B-031.5-20111026
R1106024-027	LC34-BW0002C-038.5-20111026
R1106024-028	LC34-BW0002D-045.5-20111026
R1106024-029	LC34-BW0002E-052.0-20111026
R1106024-030	LC34-BW0002F-059.5-20111026
R1106024-031	LC34-BW0003A-024.5-20111026
R1106024-032	LC34-BW0003D-045.5-20111026
R1106024-033	LC34-TB-20111026
R1106024-034	LC34-RW0007-038.5-20111026
R1106024-035	LC34-RW0007-038.5-20111026 Dissolved
R1106024-036	LC34-RW0008-052.0-20111026
R1106024-037	LC34-RW0008-052.0-20111026 Dissolved
R1106024-038	LC34-IW0002I-027.5-20111026
R1106024-039	LC34-IW0002I-027.5-20111026 Dissolved
R1106024-040	LC34-IW0002D-037.5-20111026
R1106024-041	LC34-IW0002D-037.5-20111026 Dissolved
R1106024-042	LC34-IW0002D1-052.5-20111026
R1106024-043	LC34-IW0002D1-052.5-20111026 Dissolved
R1106024-044	LC34-BW0003B-031.5-20111027
R1106024-045	LC34-BW0003C-038.5-20111027
R1106024-046	LC34-BW0003E-052.5-20111027
R1106024-047	LC34-BW0003F-059.5-20111027

00004rev

Lab ID	Client ID
R1106024-048	LC34-TB-20111027

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1502
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0076-075.0-20111025		
Lab Code:	R1106024-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.5**		mg/L	1.0	10	NA	11/4/11 18:05	
Carbon, Total Organic (TOC), Average	9060A	**4.7**		mg/L	1.0	1	NA	10/31/11 15:36	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 11:42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1502
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0076-075.0-20111025 Dissolved		
Lab Code:	R1106024-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 20:55	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/11/11 20:55	
Manganese, Dissolved	6010C	**13**		µg/L	10	1	10/31/11	11/11/11 20:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1502
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0076-075.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/30/11 13:07		267361	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/30/11 13:07		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**54**		5.0	0.31	1	NA	10/30/11 13:07		267361	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
1,1-Dichloroethene (1,1-DCE)	**0.34**	I	5.0	0.29	1	NA	10/30/11 13:07		267361	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/30/11 13:07		267361	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/30/11 13:07		267361	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/30/11 13:07		267361	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
n-Butanol	**90**	I	250	11	1	NA	10/30/11 13:07		267361	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/30/11 13:07		267361	
2-Hexanone	10	U	10	0.35	1	NA	10/30/11 13:07		267361	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/30/11 13:07		267361	
Acetone	20	U	20	0.98	1	NA	10/30/11 13:07		267361	
Benzene	5.0	U	5.0	0.21	1	NA	10/30/11 13:07		267361	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Bromoform	5.0	U	5.0	0.27	1	NA	10/30/11 13:07		267361	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/30/11 13:07		267361	
Carbon Disulfide	10	U	10	0.20	1	NA	10/30/11 13:07		267361	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/30/11 13:07		267361	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/30/11 13:07		267361	
Chloroform	5.0	U	5.0	0.22	1	NA	10/30/11 13:07		267361	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/30/11 13:07		267361	
Cyclohexane	10	U	10	0.24	1	NA	10/30/11 13:07		267361	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/30/11 13:07		267361	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/30/11 13:07		267361	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Methyl Acetate	10	U	10	0.23	1	NA	10/30/11 13:07		267361	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1502
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0076-075.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Methylcyclohexane	10	U	10	0.25	1	NA	10/30/11 13:07		267361	
Styrene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Toluene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Trichloroethene (TCE)	**0.27**	I	5.0	0.23	1	NA	10/30/11 13:07		267361	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
Vinyl Chloride	**5.0**		5.0	0.23	1	NA	10/30/11 13:07		267361	
cis-1,2-Dichloroethene	**110**		5.0	0.20	1	NA	10/30/11 13:07		267361	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/30/11 13:07		267361	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	
trans-1,2-Dichloroethene	**4.0**	I	5.0	0.20	1	NA	10/30/11 13:07		267361	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 13:07		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/30/11 13:07	
Dibromofluoromethane	102	89-119	10/30/11 13:07	
Toluene-d8	105	87-121	10/30/11 13:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1502
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0076-075.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/3/11 14:44		268117	
Ethene	1.0	U	1.0	1	NA	11/3/11 14:44		268117	
Methane	**790**		20	10	NA	11/3/11 14:54		268117	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1502
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/8/11 04:41
Sample Name:	LC34-IW0076-075.0-20111025	**Units:**	mg/L
Lab Code:	R1106024-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268467
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110711\X0006668.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**12**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**13**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 0955
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001A-024.5-20111025		
Lab Code:	R1106024-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**299**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 20:06	
Carbon, Total Organic (TOC), Average	9060A	**7.2**		mg/L	1.0	1	NA	10/31/11 16:16	
Chloride	300.0	**76.4**		mg/L	2.0	10	NA	10/26/11 20:06	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 11:51	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 20:06	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 20:06	
Sulfate	300.0	**49.6**		mg/L	2.0	10	NA	10/26/11 20:06	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 0955
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001A-024.5-20111025 Dissolved		
Lab Code:	R1106024-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 21:06	
Iron, Dissolved	6010C	**130**		µg/L	100	1	10/31/11	11/11/11 21:06	
Manganese, Dissolved	6010C	**24**		µg/L	10	1	10/31/11	11/11/11 21:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 0955
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001A-024.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	10/30/11 13:37		267361	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	10/30/11 13:37		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**59000**		2500	160	500	NA	10/31/11 15:49		267468	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	10/30/11 13:37		267361	
1,2,4-Trichlorobenzene	**73**	I	1300	65	250	NA	10/30/11 13:37		267361	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	10/30/11 13:37		267361	
1,2-Dibromoethane	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
1,2-Dichloroethane	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
1,2-Dichloropropane	1300	U	1300	70	250	NA	10/30/11 13:37		267361	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
n-Butanol	63000	U	63000	2700	250	NA	10/30/11 13:37		267361	
2-Butanone (MEK)	2500	U	2500	130	250	NA	10/30/11 13:37		267361	
2-Hexanone	2500	U	2500	88	250	NA	10/30/11 13:37		267361	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	10/30/11 13:37		267361	
Acetone	5000	U	5000	250	250	NA	10/30/11 13:37		267361	
Benzene	1300	U	1300	53	250	NA	10/30/11 13:37		267361	
Bromodichloromethane	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Bromoform	1300	U	1300	68	250	NA	10/30/11 13:37		267361	
Bromomethane	1300	U	1300	78	250	NA	10/30/11 13:37		267361	
Carbon Disulfide	2500	U	2500	50	250	NA	10/30/11 13:37		267361	
Carbon Tetrachloride	1300	U	1300	68	250	NA	10/30/11 13:37		267361	
Chlorobenzene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Chloroethane	1300	U	1300	78	250	NA	10/30/11 13:37		267361	
Chloroform	1300	U	1300	55	250	NA	10/30/11 13:37		267361	
Chloromethane	1300	U	1300	60	250	NA	10/30/11 13:37		267361	
Cyclohexane	2500	U	2500	60	250	NA	10/30/11 13:37		267361	
Dibromochloromethane	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	10/30/11 13:37		267361	
Dichloromethane	1300	U	1300	55	250	NA	10/30/11 13:37		267361	
Ethylbenzene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Methyl Acetate	2500	U	2500	58	250	NA	10/30/11 13:37		267361	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 0955
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001A-024.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Methylcyclohexane	2500	U	2500	63	250	NA	10/30/11 13:37		267361	
Styrene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Toluene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Trichloroethene (TCE)	**130**	I	1300	58	250	NA	10/30/11 13:37		267361	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
Vinyl Chloride	**2400**		1300	58	250	NA	10/30/11 13:37		267361	
cis-1,2-Dichloroethene	**45000**		1300	50	250	NA	10/30/11 13:37		267361	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
m,p-Xylenes	**50**	I	1300	50	250	NA	10/30/11 13:37		267361	
n-Butyl Acetate	1300	U	1300	53	250	NA	10/30/11 13:37		267361	
o-Xylene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	
trans-1,2-Dichloroethene	**1100**	I	1300	50	250	NA	10/30/11 13:37		267361	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/30/11 13:37		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/30/11 13:37	
Dibromofluoromethane	102	89-119	10/30/11 13:37	
Toluene-d8	104	87-121	10/30/11 13:37	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 0955
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001A-024.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**3.9**		1.0	1	NA	11/3/11 15:03		268117	
Ethene	**35**		1.0	1	NA	11/3/11 15:03		268117	
Methane	**83**		2.0	1	NA	11/3/11 15:03		268117	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 0955
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/8/11 10:21
Sample Name:	LC34-BW0001A-024.5-20111025	**Units:**	mg/L
Lab Code:	R1106024-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268467
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110711\X0006674.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**11**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1055
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001B-031.5-20111025		
Lab Code:	R1106024-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**880**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**50.6**		mg/L	2.0	20	NA	10/27/11 23:27	
Carbon, Total Organic (TOC), Average	9060A	**760**		mg/L	100	100	NA	11/2/11 17:58	
Chloride	300.0	**119**		mg/L	4.0	20	NA	10/27/11 23:27	
Iodide	300.0	**89.1**		mg/L	6.0	30	NA	10/27/11 15:47	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 20:18	
Nitrite as Nitrogen	300.0	2.0	U	mg/L	2.0	20	NA	10/27/11 23:27	*
Sulfate	300.0	**19.7**		mg/L	2.0	10	NA	10/26/11 20:18	
Sulfide, Total	SM 4500-S2- F	**2.1**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1055
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001B-031.5-20111025 Dissolved		
Lab Code:	R1106024-006	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 21:11	
Iron, Dissolved	6010C	**380**		µg/L	100	1	10/31/11	11/11/11 21:11	
Manganese, Dissolved	6010C	**43**		µg/L	10	1	10/31/11	11/11/11 21:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1055
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001B-031.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	120	500	NA	10/30/11 14:06		267361	
1,1,2,2-Tetrachloroethane	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
1,1,2-Trichloroethane	2500	U	2500	120	500	NA	10/30/11 14:06		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**68000**		5000	310	1000	NA	10/31/11 20:19		267468	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	500	NA	10/30/11 14:06		267361	
1,2,4-Trichlorobenzene	2500	U	2500	130	500	NA	10/30/11 14:06		267361	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	500	NA	10/30/11 14:06		267361	
1,2-Dibromoethane	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
1,2-Dichlorobenzene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
1,2-Dichloroethane	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
1,2-Dichloropropane	2500	U	2500	140	500	NA	10/30/11 14:06		267361	
1,3-Dichlorobenzene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
1,4-Dichlorobenzene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
n-Butanol	**1400000**		130000	5300	500	NA	10/30/11 14:06		267361	
2-Butanone (MEK)	5000	U	5000	260	500	NA	10/30/11 14:06		267361	
2-Hexanone	5000	U	5000	180	500	NA	10/30/11 14:06		267361	
4-Methyl-2-pentanone	5000	U	5000	140	500	NA	10/30/11 14:06		267361	
Acetone	10000	U	10000	490	500	NA	10/30/11 14:06		267361	
Benzene	2500	U	2500	110	500	NA	10/30/11 14:06		267361	
Bromodichloromethane	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Bromoform	2500	U	2500	140	500	NA	10/30/11 14:06		267361	
Bromomethane	2500	U	2500	160	500	NA	10/30/11 14:06		267361	
Carbon Disulfide	5000	U	5000	100	500	NA	10/30/11 14:06		267361	
Carbon Tetrachloride	2500	U	2500	140	500	NA	10/30/11 14:06		267361	
Chlorobenzene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Chloroethane	2500	U	2500	160	500	NA	10/30/11 14:06		267361	
Chloroform	2500	U	2500	110	500	NA	10/30/11 14:06		267361	
Chloromethane	2500	U	2500	120	500	NA	10/30/11 14:06		267361	
Cyclohexane	5000	U	5000	120	500	NA	10/30/11 14:06		267361	
Dibromochloromethane	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	500	NA	10/30/11 14:06		267361	
Dichloromethane	2500	U	2500	110	500	NA	10/30/11 14:06		267361	
Ethylbenzene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Isopropylbenzene (Cumene)	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Methyl Acetate	5000	U	5000	120	500	NA	10/30/11 14:06		267361	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1055
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001B-031.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Methylcyclohexane	5000	U	5000	130	500	NA	10/30/11 14:06		267361	
Styrene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Tetrachloroethene (PCE)	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Toluene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Trichloroethene (TCE)	**3200**		2500	120	500	NA	10/30/11 14:06		267361	
Trichlorofluoromethane (CFC 11)	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
Vinyl Chloride	**1100**	I	2500	120	500	NA	10/30/11 14:06		267361	
cis-1,2-Dichloroethene	**12000**		2500	100	500	NA	10/30/11 14:06		267361	
cis-1,3-Dichloropropene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
m,p-Xylenes	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
n-Butyl Acetate	**56000**		2500	110	500	NA	10/30/11 14:06		267361	
o-Xylene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	
trans-1,2-Dichloroethene	**260**	I	2500	100	500	NA	10/30/11 14:06		267361	
trans-1,3-Dichloropropene	2500	U	2500	100	500	NA	10/30/11 14:06		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/30/11 14:06	
Dibromofluoromethane	101	89-119	10/30/11 14:06	
Toluene-d8	106	87-121	10/30/11 14:06	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1055
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001B-031.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**6.5**		1.0	1	NA	11/4/11 10:25		268312	
Ethene	**12**		1.0	1	NA	11/4/11 10:25		268312	
Methane	**23**		2.0	1	NA	11/4/11 10:25		268312	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1055
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/9/11 20:41
Sample Name:	LC34-BW0001B-031.5-20111025	**Units:**	mg/L
Lab Code:	R1106024-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006705.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	5.0	U	5.0	
64-19-7	Acetic Acid	**970**		10	
107-92-6	Butanoic Acid (Butyric Acid)	**180**		20	
50-21-5	Lactic Acid	10	U	10	
79-09-4	Propionic Acid	10	U	10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1141
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001C-038.5-20111025		
Lab Code:	R1106024-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**718**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**40.2**		mg/L	1.0	10	NA	10/26/11 21:08	
Carbon, Total Organic (TOC), Average	9060A	**511**		mg/L	40	40	NA	10/31/11 16:56	
Chloride	300.0	**287**		mg/L	10	50	NA	10/27/11 23:41	
Iodide	300.0	**39.9**		mg/L	2.0	10	NA	10/27/11 12:08	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 21:08	
Nitrite as Nitrogen	300.0	5.0	U	mg/L	5.0	50	NA	10/27/11 23:41	*
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	10/26/11 21:08	
Sulfide, Total	SM 4500-S2- F	**9.0**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1141
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001C-038.5-20111025 Dissolved		
Lab Code:	R1106024-008	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 21:26	
Iron, Dissolved	6010C	**120**		µg/L	100	1	10/31/11	11/11/11 21:26	
Manganese, Dissolved	6010C	**39**		µg/L	10	1	10/31/11	11/11/11 21:26	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1141
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001C-038.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	120	500	NA	10/28/11 20:27		267265	
1,1,2,2-Tetrachloroethane	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
1,1,2-Trichloroethane	2500	U	2500	120	500	NA	10/28/11 20:27		267265	
1,1,2-Trichloro-1,2,2-trifluoroethane	**98000**		2500	160	500	NA	10/28/11 20:27		267265	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	500	NA	10/28/11 20:27		267265	
1,2,4-Trichlorobenzene	2500	U	2500	130	500	NA	10/28/11 20:27		267265	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	500	NA	10/28/11 20:27		267265	
1,2-Dibromoethane	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
1,2-Dichlorobenzene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
1,2-Dichloroethane	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
1,2-Dichloropropane	2500	U	2500	140	500	NA	10/28/11 20:27		267265	
1,3-Dichlorobenzene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
1,4-Dichlorobenzene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
n-Butanol	**200000**		130000	5300	500	NA	10/28/11 20:27		267265	
2-Butanone (MEK)	5000	U	5000	260	500	NA	10/28/11 20:27		267265	
2-Hexanone	5000	U	5000	180	500	NA	10/28/11 20:27		267265	
4-Methyl-2-pentanone	5000	U	5000	140	500	NA	10/28/11 20:27		267265	
Acetone	10000	U	10000	490	500	NA	10/28/11 20:27		267265	
Benzene	2500	U	2500	110	500	NA	10/28/11 20:27		267265	
Bromodichloromethane	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Bromoform	2500	U	2500	140	500	NA	10/28/11 20:27		267265	
Bromomethane	2500	U	2500	160	500	NA	10/28/11 20:27		267265	
Carbon Disulfide	5000	U	5000	100	500	NA	10/28/11 20:27		267265	
Carbon Tetrachloride	2500	U	2500	140	500	NA	10/28/11 20:27		267265	
Chlorobenzene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Chloroethane	2500	U	2500	160	500	NA	10/28/11 20:27		267265	
Chloroform	2500	U	2500	110	500	NA	10/28/11 20:27		267265	
Chloromethane	2500	U	2500	120	500	NA	10/28/11 20:27		267265	
Cyclohexane	5000	U	5000	120	500	NA	10/28/11 20:27		267265	
Dibromochloromethane	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	500	NA	10/28/11 20:27		267265	
Dichloromethane	2500	U	2500	110	500	NA	10/28/11 20:27		267265	
Ethylbenzene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Isopropylbenzene (Cumene)	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Methyl Acetate	5000	U	5000	120	500	NA	10/28/11 20:27		267265	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1141
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001C-038.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Methylcyclohexane	5000	U	5000	130	500	NA	10/28/11 20:27		267265	
Styrene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Tetrachloroethene (PCE)	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Toluene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Trichloroethene (TCE)	**12000**		2500	120	500	NA	10/28/11 20:27		267265	
Trichlorofluoromethane (CFC 11)	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
Vinyl Chloride	**1300**	I	2500	120	500	NA	10/28/11 20:27		267265	
cis-1,2-Dichloroethene	**22000**		2500	100	500	NA	10/28/11 20:27		267265	
cis-1,3-Dichloropropene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
m,p-Xylenes	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
n-Butyl Acetate	2500	U	2500	110	500	NA	10/28/11 20:27		267265	
o-Xylene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	
trans-1,2-Dichloroethene	**270**	I	2500	100	500	NA	10/28/11 20:27		267265	
trans-1,3-Dichloropropene	2500	U	2500	100	500	NA	10/28/11 20:27		267265	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	10/28/11 20:27	
Dibromofluoromethane	100	89-119	10/28/11 20:27	
Toluene-d8	103	87-121	10/28/11 20:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1141
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001C-038.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**57**		1.0	1	NA	11/3/11 15:14		268117	
Ethene	**10**		1.0	1	NA	11/3/11 15:14		268117	
Methane	**64**		2.0	1	NA	11/3/11 15:14		268117	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1141
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/9/11 22:35
Sample Name:	LC34-BW0001C-038.5-20111025	**Units:**	mg/L
Lab Code:	R1106024-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006707.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**480**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**530**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**12**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1440
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001D-045.5-20111025		
Lab Code:	R1106024-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**436**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**12.7**		mg/L	1.0	10	NA	10/26/11 21:20	
Carbon, Total Organic (TOC), Average	9060A	**241**		mg/L	20	20	NA	10/31/11 17:36	
Chloride	300.0	**568**		mg/L	20	100	NA	10/27/11 23:55	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 12:16	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 21:20	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/27/11 23:55	*
Sulfate	300.0	**69.0**		mg/L	2.0	10	NA	10/26/11 21:20	
Sulfide, Total	SM 4500-S2- F	**2.8**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1440
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001D-045.5-20111025 Dissolved		
Lab Code:	R1106024-010	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 21:31	
Iron, Dissolved	6010C	**230**		µg/L	100	1	10/31/11	11/11/11 21:31	
Manganese, Dissolved	6010C	**41**		µg/L	10	1	10/31/11	11/11/11 21:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1440
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001D-045.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5000	U	5000	230	1000	NA	10/28/11 20:57		267265	
1,1,2,2-Tetrachloroethane	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
1,1,2-Trichloroethane	5000	U	5000	230	1000	NA	10/28/11 20:57		267265	
1,1,2-Trichloro-1,2,2-trifluoroethane	**63000**		5000	310	1000	NA	10/28/11 20:57		267265	
1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	1000	NA	10/28/11 20:57		267265	
1,2,4-Trichlorobenzene	5000	U	5000	260	1000	NA	10/28/11 20:57		267265	
1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	1000	NA	10/28/11 20:57		267265	
1,2-Dibromoethane	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
1,2-Dichlorobenzene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
1,2-Dichloroethane	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
1,2-Dichloropropane	5000	U	5000	280	1000	NA	10/28/11 20:57		267265	
1,3-Dichlorobenzene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
1,4-Dichlorobenzene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
n-Butanol	**310000**		250000	11000	1000	NA	10/28/11 20:57		267265	
2-Butanone (MEK)	10000	U	10000	510	1000	NA	10/28/11 20:57		267265	
2-Hexanone	10000	U	10000	350	1000	NA	10/28/11 20:57		267265	
4-Methyl-2-pentanone	10000	U	10000	270	1000	NA	10/28/11 20:57		267265	
Acetone	20000	U	20000	980	1000	NA	10/28/11 20:57		267265	
Benzene	5000	U	5000	210	1000	NA	10/28/11 20:57		267265	
Bromodichloromethane	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Bromoform	5000	U	5000	270	1000	NA	10/28/11 20:57		267265	
Bromomethane	5000	U	5000	310	1000	NA	10/28/11 20:57		267265	
Carbon Disulfide	10000	U	10000	200	1000	NA	10/28/11 20:57		267265	
Carbon Tetrachloride	5000	U	5000	270	1000	NA	10/28/11 20:57		267265	
Chlorobenzene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Chloroethane	5000	U	5000	310	1000	NA	10/28/11 20:57		267265	
Chloroform	5000	U	5000	220	1000	NA	10/28/11 20:57		267265	
Chloromethane	5000	U	5000	240	1000	NA	10/28/11 20:57		267265	
Cyclohexane	10000	U	10000	240	1000	NA	10/28/11 20:57		267265	
Dibromochloromethane	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	1000	NA	10/28/11 20:57		267265	
Dichloromethane	5000	U	5000	220	1000	NA	10/28/11 20:57		267265	
Ethylbenzene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Isopropylbenzene (Cumene)	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Methyl Acetate	10000	U	10000	230	1000	NA	10/28/11 20:57		267265	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1440
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001D-045.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Methylcyclohexane	10000	U	10000	250	1000	NA	10/28/11 20:57		267265	
Styrene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Tetrachloroethene (PCE)	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Toluene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Trichloroethene (TCE)	**150000**		5000	230	1000	NA	10/28/11 20:57		267265	
Trichlorofluoromethane (CFC 11)	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
Vinyl Chloride	5000	U	5000	230	1000	NA	10/28/11 20:57		267265	
cis-1,2-Dichloroethene	**3000**	I	5000	200	1000	NA	10/28/11 20:57		267265	
cis-1,3-Dichloropropene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
m,p-Xylenes	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
n-Butyl Acetate	**270000**		13000	530	2500	NA	10/31/11 19:49		267468	
o-Xylene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
trans-1,2-Dichloroethene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	
trans-1,3-Dichloropropene	5000	U	5000	200	1000	NA	10/28/11 20:57		267265	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/28/11 20:57	
Dibromofluoromethane	102	89-119	10/28/11 20:57	
Toluene-d8	106	87-121	10/28/11 20:57	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1440
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001D-045.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-009	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**99**		2.0	2	NA	11/4/11 11:04		268312	
Ethene	**3.5**		1.0	1	NA	11/4/11 10:35		268312	
Methane	**13**		2.0	1	NA	11/4/11 10:35		268312	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1440
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/11/11 01:55
Sample Name:	LC34-BW0001D-045.5-20111025	**Units:**	mg/L
Lab Code:	R1106024-009	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006736.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**340**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**29**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1400
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001E-052.5-20111025		
Lab Code:	R1106024-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**299**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**4.8**		mg/L	1.0	10	NA	10/26/11 21:58	
Carbon, Total Organic (TOC), Average	9060A	**79**		mg/L	10	10	NA	10/31/11 18:16	
Chloride	300.0	**625**		mg/L	20	100	NA	10/27/11 22:17	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 12:41	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 21:58	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/27/11 22:17	*
Sulfate	300.0	**16.8**		mg/L	2.0	10	NA	10/26/11 21:58	
Sulfide, Total	SM 4500-S2- F	**9.3**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1400
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001E-052.5-20111025 Dissolved		
Lab Code:	R1106024-012	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 21:37	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/11/11 21:37	
Manganese, Dissolved	6010C	**18**		µg/L	10	1	10/31/11	11/11/11 21:37	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1400
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001E-052.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.2	5	NA	10/31/11 16:19		267468	
1,1,2,2-Tetrachloroethane	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
1,1,2-Trichloroethane	25	U	25	1.2	5	NA	10/31/11 16:19		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	**110**		25	1.6	5	NA	10/31/11 16:19		267468	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
1,1-Dichloroethene (1,1-DCE)	25	U	25	1.5	5	NA	10/31/11 16:19		267468	
1,2,4-Trichlorobenzene	25	U	25	1.3	5	NA	10/31/11 16:19		267468	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	5	NA	10/31/11 16:19		267468	
1,2-Dibromoethane	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
1,2-Dichlorobenzene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
1,2-Dichloroethane	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
1,2-Dichloropropane	25	U	25	1.5	5	NA	10/31/11 16:19		267468	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
n-Butanol	1300	U	1300	53	5	NA	10/31/11 16:19		267468	
2-Butanone (MEK)	50	U	50	2.6	5	NA	10/31/11 16:19		267468	
2-Hexanone	50	U	50	1.8	5	NA	10/31/11 16:19		267468	
4-Methyl-2-pentanone	50	U	50	1.4	5	NA	10/31/11 16:19		267468	
Acetone	100	U	100	4.9	5	NA	10/31/11 16:19		267468	
Benzene	25	U	25	1.1	5	NA	10/31/11 16:19		267468	
Bromodichloromethane	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Bromoform	25	U	25	1.4	5	NA	10/31/11 16:19		267468	
Bromomethane	25	U	25	1.6	5	NA	10/31/11 16:19		267468	
Carbon Disulfide	50	U	50	1.0	5	NA	10/31/11 16:19		267468	
Carbon Tetrachloride	25	U	25	1.4	5	NA	10/31/11 16:19		267468	
Chlorobenzene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Chloroethane	25	U	25	1.6	5	NA	10/31/11 16:19		267468	
Chloroform	25	U	25	1.1	5	NA	10/31/11 16:19		267468	
Chloromethane	25	U	25	1.2	5	NA	10/31/11 16:19		267468	
Cyclohexane	50	U	50	1.2	5	NA	10/31/11 16:19		267468	
Dibromochloromethane	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	5	NA	10/31/11 16:19		267468	
Dichloromethane	25	U	25	1.1	5	NA	10/31/11 16:19		267468	
Ethylbenzene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Methyl Acetate	50	U	50	1.2	5	NA	10/31/11 16:19		267468	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1400
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001E-052.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Methylcyclohexane	50	U	50	1.3	5	NA	10/31/11 16:19		267468	
Styrene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Tetrachloroethene (PCE)	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Toluene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Trichloroethene (TCE)	**230**		25	1.2	5	NA	10/31/11 16:19		267468	
Trichlorofluoromethane (CFC 11)	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
Vinyl Chloride	**110**		25	1.2	5	NA	10/31/11 16:19		267468	
cis-1,2-Dichloroethene	**470**		25	1.0	5	NA	10/31/11 16:19		267468	
cis-1,3-Dichloropropene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
m,p-Xylenes	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
n-Butyl Acetate	25	U	25	1.1	5	NA	10/31/11 16:19		267468	
o-Xylene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	
trans-1,2-Dichloroethene	**3.6**	I	25	1.0	5	NA	10/31/11 16:19		267468	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	10/31/11 16:19		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	10/31/11 16:19	
Dibromofluoromethane	104	89-119	10/31/11 16:19	
Toluene-d8	103	87-121	10/31/11 16:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1400
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001E-052.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-011	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**6.9**		1.0	1	NA	11/4/11 10:45		268312	
Ethene	**110**		2.0	2	NA	11/4/11 10:55		268312	
Methane	**95**		2.0	1	NA	11/4/11 10:45		268312	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1400
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/8/11 18:50
Sample Name:	LC34-BW0001E-052.5-20111025	**Units:**	mg/L
Lab Code:	R1106024-011	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268467
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110711\X0006683.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**140**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**34**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**3.5**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1315
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001F-059.5-20111025		
Lab Code:	R1106024-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**169**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**1.6**		mg/L	1.0	10	NA	10/26/11 22:10	
Carbon, Total Organic (TOC), Average	9060A	**4.4**		mg/L	1.0	1	NA	11/2/11 18:38	
Chloride	300.0	**670**		mg/L	20	100	NA	10/27/11 22:31	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 12:49	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/26/11 22:10	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/27/11 22:31	*
Sulfate	300.0	**103**		mg/L	4.0	20	NA	10/31/11 23:53	
Sulfide, Total	SM 4500-S2- F	**1.1**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1315
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001F-059.5-20111025 Dissolved		
Lab Code:	R1106024-014	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 21:43	
Iron, Dissolved	6010C	**130**		µg/L	100	1	10/31/11	11/11/11 21:43	
Manganese, Dissolved	6010C	**13**		µg/L	10	1	10/31/11	11/11/11 21:43	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1315
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001F-059.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/31/11 14:50		267468	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/31/11 14:50		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/31/11 14:50		267468	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/31/11 14:50		267468	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/31/11 14:50		267468	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/31/11 14:50		267468	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/31/11 14:50		267468	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
n-Butanol	**150**	I	250	11	1	NA	10/31/11 14:50		267468	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/31/11 14:50		267468	
2-Hexanone	10	U	10	0.35	1	NA	10/31/11 14:50		267468	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/31/11 14:50		267468	
Acetone	20	U	20	0.98	1	NA	10/31/11 14:50		267468	
Benzene	5.0	U	5.0	0.21	1	NA	10/31/11 14:50		267468	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Bromoform	5.0	U	5.0	0.27	1	NA	10/31/11 14:50		267468	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/31/11 14:50		267468	
Carbon Disulfide	10	U	10	0.20	1	NA	10/31/11 14:50		267468	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/31/11 14:50		267468	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/31/11 14:50		267468	
Chloroform	5.0	U	5.0	0.22	1	NA	10/31/11 14:50		267468	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/31/11 14:50		267468	
Cyclohexane	10	U	10	0.24	1	NA	10/31/11 14:50		267468	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/31/11 14:50		267468	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/31/11 14:50		267468	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Methyl Acetate	10	U	10	0.23	1	NA	10/31/11 14:50		267468	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1315
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001F-059.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Methylcyclohexane	10	U	10	0.25	1	NA	10/31/11 14:50		267468	
Styrene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Toluene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Trichloroethene (TCE)	**1.1**	I	5.0	0.23	1	NA	10/31/11 14:50		267468	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/31/11 14:50		267468	
cis-1,2-Dichloroethene	**0.34**	I	5.0	0.20	1	NA	10/31/11 14:50		267468	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/31/11 14:50		267468	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 14:50		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	10/31/11 14:50	
Dibromofluoromethane	101	89-119	10/31/11 14:50	
Toluene-d8	102	87-121	10/31/11 14:50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1315
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-BW0001F-059.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-013	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/4/11 11:15		268312	
Ethene	1.0	U	1.0	1	NA	11/4/11 11:15		268312	
Methane	**51**		2.0	1	NA	11/4/11 11:15		268312	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1315
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/8/11 20:43
Sample Name:	LC34-BW0001F-059.5-20111025	**Units:**	mg/L
Lab Code:	R1106024-013	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268467
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110711\X0006685.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.7		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1202
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0067D-040.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/28/11 22:26		267265	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/28/11 22:26		267265	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/28/11 22:26		267265	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/28/11 22:26		267265	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/28/11 22:26		267265	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/28/11 22:26		267265	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/28/11 22:26		267265	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
n-Butanol	250	U	250	11	1	NA	10/28/11 22:26		267265	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/28/11 22:26		267265	
2-Hexanone	10	U	10	0.35	1	NA	10/28/11 22:26		267265	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/28/11 22:26		267265	
Acetone	20	U	20	0.98	1	NA	10/28/11 22:26		267265	
Benzene	5.0	U	5.0	0.21	1	NA	10/28/11 22:26		267265	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Bromoform	5.0	U	5.0	0.27	1	NA	10/28/11 22:26		267265	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/28/11 22:26		267265	
Carbon Disulfide	10	U	10	0.20	1	NA	10/28/11 22:26		267265	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/28/11 22:26		267265	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/28/11 22:26		267265	
Chloroform	5.0	U	5.0	0.22	1	NA	10/28/11 22:26		267265	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/28/11 22:26		267265	
Cyclohexane	10	U	10	0.24	1	NA	10/28/11 22:26		267265	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/28/11 22:26		267265	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/28/11 22:26		267265	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Methyl Acetate	10	U	10	0.23	1	NA	10/28/11 22:26		267265	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1202
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0067D-040.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Methylcyclohexane	10	U	10	0.25	1	NA	10/28/11 22:26		267265	
Styrene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Toluene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/28/11 22:26		267265	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
Vinyl Chloride	**7.4**		5.0	0.23	1	NA	10/28/11 22:26		267265	
cis-1,2-Dichloroethene	**0.74**	I	5.0	0.20	1	NA	10/28/11 22:26		267265	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/28/11 22:26		267265	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/28/11 22:26		267265	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/28/11 22:26	
Dibromofluoromethane	103	89-119	10/28/11 22:26	
Toluene-d8	104	87-121	10/28/11 22:26	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1336
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0067D1-068.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 03:23		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 03:23		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 03:23		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 03:23		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 03:23		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 03:23		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 03:23		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
n-Butanol	250	U	250	11	1	NA	10/29/11 03:23		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 03:23		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 03:23		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 03:23		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 03:23		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 03:23		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 03:23		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 03:23		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 03:23		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 03:23		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 03:23		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 03:23		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 03:23		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 03:23		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 03:23		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 03:23		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 03:23		267270	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1336
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0067D1-068.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 03:23		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Toluene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 03:23		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 03:23		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 03:23		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 03:23		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	10/29/11 03:23	
Dibromofluoromethane	102	89-119	10/29/11 03:23	
Toluene-d8	103	87-121	10/29/11 03:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1100
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0070D-040.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 03:53		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 03:53		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 03:53		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 03:53		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 03:53		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 03:53		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 03:53		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
n-Butanol	250	U	250	11	1	NA	10/29/11 03:53		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 03:53		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 03:53		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 03:53		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 03:53		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 03:53		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 03:53		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 03:53		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 03:53		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 03:53		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 03:53		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 03:53		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 03:53		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 03:53		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 03:53		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 03:53		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 03:53		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1100
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0070D-040.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 03:53		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Toluene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 03:53		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 03:53		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 03:53		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 03:53		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	10/29/11 03:53	
Dibromofluoromethane	102	89-119	10/29/11 03:53	
Toluene-d8	104	87-121	10/29/11 03:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1124
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0070D1-070.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 04:22		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 04:22		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 04:22		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 04:22		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 04:22		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 04:22		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 04:22		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
n-Butanol	250	U	250	11	1	NA	10/29/11 04:22		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 04:22		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 04:22		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 04:22		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 04:22		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 04:22		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 04:22		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 04:22		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 04:22		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 04:22		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 04:22		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 04:22		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 04:22		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 04:22		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 04:22		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 04:22		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 04:22		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1124
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0070D1-070.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 04:22		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Toluene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 04:22		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 04:22		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 04:22		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 04:22		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/29/11 04:22	
Dibromofluoromethane	101	89-119	10/29/11 04:22	
Toluene-d8	104	87-121	10/29/11 04:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1004
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0071D-040.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 04:52		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 04:52		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 04:52		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 04:52		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 04:52		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 04:52		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 04:52		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
n-Butanol	250	U	250	11	1	NA	10/29/11 04:52		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 04:52		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 04:52		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 04:52		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 04:52		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 04:52		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 04:52		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 04:52		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 04:52		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 04:52		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 04:52		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 04:52		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 04:52		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 04:52		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 04:52		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 04:52		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 04:52		267270	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1004
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0071D-040.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 04:52		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Toluene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 04:52		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 04:52		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 04:52		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 04:52		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/29/11 04:52	
Dibromofluoromethane	103	89-119	10/29/11 04:52	
Toluene-d8	105	87-121	10/29/11 04:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1026
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0071D1-070.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 05:22		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 05:22		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 05:22		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 05:22		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 05:22		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 05:22		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 05:22		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
n-Butanol	250	U	250	11	1	NA	10/29/11 05:22		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 05:22		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 05:22		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 05:22		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 05:22		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 05:22		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 05:22		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 05:22		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 05:22		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 05:22		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 05:22		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 05:22		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 05:22		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 05:22		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 05:22		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 05:22		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 05:22		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11 1026
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-IW0071D1-070.0-20111025	**Units:**	µg/L
Lab Code:	R1106024-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 05:22		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Toluene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 05:22		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 05:22		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 05:22		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 05:22		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/29/11 05:22	
Dibromofluoromethane	102	89-119	10/29/11 05:22	
Toluene-d8	104	87-121	10/29/11 05:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-TB-20111025	**Units:**	µg/L
Lab Code:	R1106024-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 05:51		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 05:51		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 05:51		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 05:51		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 05:51		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 05:51		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 05:51		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
n-Butanol	250	U	250	11	1	NA	10/29/11 05:51		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 05:51		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 05:51		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 05:51		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 05:51		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 05:51		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 05:51		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 05:51		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 05:51		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 05:51		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 05:51		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 05:51		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 05:51		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 05:51		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 05:51		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 05:51		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 05:51		267270	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11
Sample Matrix:	Water	**Date Received:**	10/26/11
Sample Name:	LC34-TB-20111025	**Units:**	µg/L
Lab Code:	R1106024-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 05:51		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Toluene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 05:51		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 05:51		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 05:51		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 05:51		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/29/11 05:51	
Dibromofluoromethane	102	89-119	10/29/11 05:51	
Toluene-d8	105	87-121	10/29/11 05:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0950
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002A-024.5-20111026		
Lab Code:	R1106024-025	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**11.8**		mg/L	1.0	10	NA	11/4/11 18:19	
Carbon, Total Organic (TOC), Average	9060A	**178**		mg/L	20	20	NA	10/31/11 19:35	
Iodide	300.0	**14.0**		mg/L	2.0	10	NA	10/27/11 13:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0950
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002A-024.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	10/30/11 16:06		267361	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	10/30/11 16:06		267361	
1,1,2-Trichloroethane	500	U	500	23	100	NA	10/30/11 16:06		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1100**		500	31	100	NA	10/30/11 16:06		267361	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	10/30/11 16:06		267361	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	10/30/11 16:06		267361	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	10/30/11 16:06		267361	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	10/30/11 16:06		267361	
1,2-Dibromoethane	500	U	500	20	100	NA	10/30/11 16:06		267361	
1,2-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 16:06		267361	
1,2-Dichloroethane	500	U	500	20	100	NA	10/30/11 16:06		267361	
1,2-Dichloropropane	500	U	500	29	100	NA	10/30/11 16:06		267361	
1,3-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 16:06		267361	
1,4-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 16:06		267361	
n-Butanol	25000	U	25000	1100	100	NA	10/30/11 16:06		267361	
2-Butanone (MEK)	1000	U	1000	51	100	NA	10/30/11 16:06		267361	
2-Hexanone	1000	U	1000	35	100	NA	10/30/11 16:06		267361	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	10/30/11 16:06		267361	
Acetone	2000	U	2000	98	100	NA	10/30/11 16:06		267361	
Benzene	500	U	500	21	100	NA	10/30/11 16:06		267361	
Bromodichloromethane	500	U	500	20	100	NA	10/30/11 16:06		267361	
Bromoform	500	U	500	27	100	NA	10/30/11 16:06		267361	
Bromomethane	500	U	500	31	100	NA	10/30/11 16:06		267361	
Carbon Disulfide	1000	U	1000	20	100	NA	10/30/11 16:06		267361	
Carbon Tetrachloride	500	U	500	27	100	NA	10/30/11 16:06		267361	
Chlorobenzene	500	U	500	20	100	NA	10/30/11 16:06		267361	
Chloroethane	500	U	500	31	100	NA	10/30/11 16:06		267361	
Chloroform	500	U	500	22	100	NA	10/30/11 16:06		267361	
Chloromethane	500	U	500	24	100	NA	10/30/11 16:06		267361	
Cyclohexane	1000	U	1000	24	100	NA	10/30/11 16:06		267361	
Dibromochloromethane	500	U	500	20	100	NA	10/30/11 16:06		267361	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	10/30/11 16:06		267361	
Dichloromethane	500	U	500	22	100	NA	10/30/11 16:06		267361	
Ethylbenzene	500	U	500	20	100	NA	10/30/11 16:06		267361	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	10/30/11 16:06		267361	
Methyl Acetate	1000	U	1000	23	100	NA	10/30/11 16:06		267361	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0950
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002A-024.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	10/30/11 16:06		267361	
Methylcyclohexane	1000	U	1000	25	100	NA	10/30/11 16:06		267361	
Styrene	500	U	500	20	100	NA	10/30/11 16:06		267361	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	10/30/11 16:06		267361	
Toluene	500	U	500	20	100	NA	10/30/11 16:06		267361	
Trichloroethene (TCE)	**31**	I	500	23	100	NA	10/30/11 16:06		267361	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	10/30/11 16:06		267361	
Vinyl Chloride	**850**		500	23	100	NA	10/30/11 16:06		267361	
cis-1,2-Dichloroethene	**13000**		500	20	100	NA	10/30/11 16:06		267361	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	10/30/11 16:06		267361	
m,p-Xylenes	500	U	500	20	100	NA	10/30/11 16:06		267361	
n-Butyl Acetate	500	U	500	21	100	NA	10/30/11 16:06		267361	
o-Xylene	500	U	500	20	100	NA	10/30/11 16:06		267361	
trans-1,2-Dichloroethene	**330**	I	500	20	100	NA	10/30/11 16:06		267361	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	10/30/11 16:06		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	10/30/11 16:06	
Dibromofluoromethane	103	89-119	10/30/11 16:06	
Toluene-d8	105	87-121	10/30/11 16:06	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0950
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002A-024.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-025	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**3.0**		1.0	1	NA	11/7/11 11:04		268430	
Ethene	**46**		1.0	1	NA	11/7/11 11:04		268430	
Methane	**660**		20	10	NA	11/7/11 11:27		268430	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0950
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/11/11 17:43
Sample Name:	LC34-BW0002A-024.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-025	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006749.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**370**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**57**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0910
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002B-031.5-20111026		
Lab Code:	R1106024-026	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**6.8**		mg/L	1.0	10	NA	11/4/11 18:34	
Carbon, Total Organic (TOC), Average	9060A	**107**		mg/L	10	10	NA	10/31/11 20:15	
Iodide	300.0	**7.4**		mg/L	2.0	10	NA	10/27/11 13:20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0910
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002B-031.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	10/29/11 06:51		267270	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	10/29/11 06:51		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	**5400**		1300	78	250	NA	10/29/11 06:51		267270	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	10/29/11 06:51		267270	
1,2,4-Trichlorobenzene	1300	U	1300	65	250	NA	10/29/11 06:51		267270	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	10/29/11 06:51		267270	
1,2-Dibromoethane	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
1,2-Dichloroethane	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
1,2-Dichloropropane	1300	U	1300	70	250	NA	10/29/11 06:51		267270	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
n-Butanol	63000	U	63000	2700	250	NA	10/29/11 06:51		267270	
2-Butanone (MEK)	2500	U	2500	130	250	NA	10/29/11 06:51		267270	
2-Hexanone	2500	U	2500	88	250	NA	10/29/11 06:51		267270	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	10/29/11 06:51		267270	
Acetone	5000	U	5000	250	250	NA	10/29/11 06:51		267270	
Benzene	1300	U	1300	53	250	NA	10/29/11 06:51		267270	
Bromodichloromethane	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Bromoform	1300	U	1300	68	250	NA	10/29/11 06:51		267270	
Bromomethane	1300	U	1300	78	250	NA	10/29/11 06:51		267270	
Carbon Disulfide	2500	U	2500	50	250	NA	10/29/11 06:51		267270	
Carbon Tetrachloride	1300	U	1300	68	250	NA	10/29/11 06:51		267270	
Chlorobenzene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Chloroethane	1300	U	1300	78	250	NA	10/29/11 06:51		267270	
Chloroform	1300	U	1300	55	250	NA	10/29/11 06:51		267270	
Chloromethane	1300	U	1300	60	250	NA	10/29/11 06:51		267270	
Cyclohexane	2500	U	2500	60	250	NA	10/29/11 06:51		267270	
Dibromochloromethane	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	10/29/11 06:51		267270	
Dichloromethane	1300	U	1300	55	250	NA	10/29/11 06:51		267270	
Ethylbenzene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Methyl Acetate	2500	U	2500	58	250	NA	10/29/11 06:51		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0910
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002B-031.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-026	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Methylcyclohexane	2500	U	2500	63	250	NA	10/29/11 06:51		267270	
Styrene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Toluene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Trichloroethene (TCE)	**320**	I	1300	58	250	NA	10/29/11 06:51		267270	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
Vinyl Chloride	**1300**		1300	58	250	NA	10/29/11 06:51		267270	
cis-1,2-Dichloroethene	**36000**		1300	50	250	NA	10/29/11 06:51		267270	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
m,p-Xylenes	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
n-Butyl Acetate	1300	U	1300	53	250	NA	10/29/11 06:51		267270	
o-Xylene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	
trans-1,2-Dichloroethene	**720**	I	1300	50	250	NA	10/29/11 06:51		267270	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/29/11 06:51		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/29/11 06:51	
Dibromofluoromethane	103	89-119	10/29/11 06:51	
Toluene-d8	105	87-121	10/29/11 06:51	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0910
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002B-031.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-026	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**15**		1.0	1	NA	11/7/11 11:40		268430	
Ethene	**27**		1.0	1	NA	11/7/11 11:40		268430	
Methane	**82**		2.0	1	NA	11/7/11 11:40		268430	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0910
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/11/11 19:36
Sample Name:	LC34-BW0002B-031.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-026	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006751.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**230**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**30**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	**2.4**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1025
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002C-038.5-20111026		
Lab Code:	R1106024-027	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**366**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**2.9**		mg/L	1.0	10	NA	10/27/11 20:52	
Carbon, Total Organic (TOC), Average	9060A	**78**		mg/L	10	10	NA	10/31/11 20:55	
Chloride	300.0	**548**		mg/L	20	100	NA	10/28/11 13:45	
Iodide	300.0	**6.6**		mg/L	2.0	10	NA	10/27/11 13:28	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/27/11 20:52	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/28/11 13:45	*
Sulfate	300.0	**4.2**		mg/L	2.0	10	NA	10/27/11 20:52	
Sulfide, Total	SM 4500-S2- F	**10.9**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1025
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002C-038.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	10/29/11 07:21		267270	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	10/29/11 07:21		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	**400**	I	1300	78	250	NA	10/29/11 07:21		267270	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	10/29/11 07:21		267270	
1,2,4-Trichlorobenzene	1300	U	1300	65	250	NA	10/29/11 07:21		267270	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	10/29/11 07:21		267270	
1,2-Dibromoethane	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
1,2-Dichloroethane	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
1,2-Dichloropropane	1300	U	1300	70	250	NA	10/29/11 07:21		267270	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
n-Butanol	63000	U	63000	2700	250	NA	10/29/11 07:21		267270	
2-Butanone (MEK)	2500	U	2500	130	250	NA	10/29/11 07:21		267270	
2-Hexanone	2500	U	2500	88	250	NA	10/29/11 07:21		267270	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	10/29/11 07:21		267270	
Acetone	5000	U	5000	250	250	NA	10/29/11 07:21		267270	
Benzene	1300	U	1300	53	250	NA	10/29/11 07:21		267270	
Bromodichloromethane	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Bromoform	1300	U	1300	68	250	NA	10/29/11 07:21		267270	
Bromomethane	1300	U	1300	78	250	NA	10/29/11 07:21		267270	
Carbon Disulfide	2500	U	2500	50	250	NA	10/29/11 07:21		267270	
Carbon Tetrachloride	1300	U	1300	68	250	NA	10/29/11 07:21		267270	
Chlorobenzene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Chloroethane	1300	U	1300	78	250	NA	10/29/11 07:21		267270	
Chloroform	1300	U	1300	55	250	NA	10/29/11 07:21		267270	
Chloromethane	1300	U	1300	60	250	NA	10/29/11 07:21		267270	
Cyclohexane	2500	U	2500	60	250	NA	10/29/11 07:21		267270	
Dibromochloromethane	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	10/29/11 07:21		267270	
Dichloromethane	1300	U	1300	55	250	NA	10/29/11 07:21		267270	
Ethylbenzene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Methyl Acetate	2500	U	2500	58	250	NA	10/29/11 07:21		267270	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1025
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002C-038.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Methylcyclohexane	2500	U	2500	63	250	NA	10/29/11 07:21		267270	
Styrene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Toluene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Trichloroethene (TCE)	**530**	I	1300	58	250	NA	10/29/11 07:21		267270	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
Vinyl Chloride	**3800**		1300	58	250	NA	10/29/11 07:21		267270	
cis-1,2-Dichloroethene	**66000**		2500	100	500	NA	10/30/11 16:35		267361	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
m,p-Xylenes	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
n-Butyl Acetate	1300	U	1300	53	250	NA	10/29/11 07:21		267270	
o-Xylene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	
trans-1,2-Dichloroethene	**320**	I	1300	50	250	NA	10/29/11 07:21		267270	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/29/11 07:21		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/29/11 07:21	
Dibromofluoromethane	102	89-119	10/29/11 07:21	
Toluene-d8	104	87-121	10/29/11 07:21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1025
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002C-038.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-027	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**110**		2.0	2	NA	11/7/11 12:06		268430	
Ethene	**31**		1.0	1	NA	11/7/11 11:51		268430	
Methane	**170**		4.0	2	NA	11/7/11 12:06		268430	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1025
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/11/11 03:49
Sample Name:	LC34-BW0002C-038.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-027	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006738.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**160**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**43**		2.0	
50-21-5	Lactic Acid	**1.1**		1.0	
79-09-4	Propionic Acid	**2.0**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1110
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002D-045.5-20111026		
Lab Code:	R1106024-028	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**11.7**		mg/L	1.0	10	NA	11/4/11 18:48	
Carbon, Total Organic (TOC), Average	9060A	**102**		mg/L	10	10	NA	10/31/11 22:55	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 13:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1110
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002D-045.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	12	50	NA	10/29/11 07:50		267270	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	10/29/11 07:50		267270	
1,1,2-Trichloroethane	250	U	250	12	50	NA	10/29/11 07:50		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	16	50	NA	10/29/11 07:50		267270	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	10/29/11 07:50		267270	
1,1-Dichloroethene (1,1-DCE)	250	U	250	15	50	NA	10/29/11 07:50		267270	
1,2,4-Trichlorobenzene	250	U	250	13	50	NA	10/29/11 07:50		267270	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	50	NA	10/29/11 07:50		267270	
1,2-Dibromoethane	250	U	250	10	50	NA	10/29/11 07:50		267270	
1,2-Dichlorobenzene	250	U	250	10	50	NA	10/29/11 07:50		267270	
1,2-Dichloroethane	250	U	250	10	50	NA	10/29/11 07:50		267270	
1,2-Dichloropropane	250	U	250	15	50	NA	10/29/11 07:50		267270	
1,3-Dichlorobenzene	250	U	250	10	50	NA	10/29/11 07:50		267270	
1,4-Dichlorobenzene	250	U	250	10	50	NA	10/29/11 07:50		267270	
n-Butanol	13000	U	13000	530	50	NA	10/29/11 07:50		267270	
2-Butanone (MEK)	500	U	500	26	50	NA	10/29/11 07:50		267270	
2-Hexanone	500	U	500	18	50	NA	10/29/11 07:50		267270	
4-Methyl-2-pentanone	500	U	500	14	50	NA	10/29/11 07:50		267270	
Acetone	1000	U	1000	49	50	NA	10/29/11 07:50		267270	
Benzene	250	U	250	11	50	NA	10/29/11 07:50		267270	
Bromodichloromethane	250	U	250	10	50	NA	10/29/11 07:50		267270	
Bromoform	250	U	250	14	50	NA	10/29/11 07:50		267270	
Bromomethane	250	U	250	16	50	NA	10/29/11 07:50		267270	
Carbon Disulfide	500	U	500	10	50	NA	10/29/11 07:50		267270	
Carbon Tetrachloride	250	U	250	14	50	NA	10/29/11 07:50		267270	
Chlorobenzene	250	U	250	10	50	NA	10/29/11 07:50		267270	
Chloroethane	250	U	250	16	50	NA	10/29/11 07:50		267270	
Chloroform	250	U	250	11	50	NA	10/29/11 07:50		267270	
Chloromethane	250	U	250	12	50	NA	10/29/11 07:50		267270	
Cyclohexane	500	U	500	12	50	NA	10/29/11 07:50		267270	
Dibromochloromethane	250	U	250	10	50	NA	10/29/11 07:50		267270	
Dichlorodifluoromethane (CFC 12)	250	U	250	29	50	NA	10/29/11 07:50		267270	
Dichloromethane	250	U	250	11	50	NA	10/29/11 07:50		267270	
Ethylbenzene	250	U	250	10	50	NA	10/29/11 07:50		267270	
Isopropylbenzene (Cumene)	250	U	250	10	50	NA	10/29/11 07:50		267270	
Methyl Acetate	500	U	500	12	50	NA	10/29/11 07:50		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1110
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002D-045.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	10	50	NA	10/29/11 07:50		267270	
Methylcyclohexane	500	U	500	13	50	NA	10/29/11 07:50		267270	
Styrene	250	U	250	10	50	NA	10/29/11 07:50		267270	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	10/29/11 07:50		267270	
Toluene	250	U	250	10	50	NA	10/29/11 07:50		267270	
Trichloroethene (TCE)	**29**	I	250	12	50	NA	10/29/11 07:50		267270	
Trichlorofluoromethane (CFC 11)	250	U	250	10	50	NA	10/29/11 07:50		267270	
Vinyl Chloride	**3900**		250	12	50	NA	10/29/11 07:50		267270	
cis-1,2-Dichloroethene	**16000**		500	20	100	NA	10/30/11 17:05		267361	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	10/29/11 07:50		267270	
m,p-Xylenes	250	U	250	10	50	NA	10/29/11 07:50		267270	
n-Butyl Acetate	250	U	250	11	50	NA	10/29/11 07:50		267270	
o-Xylene	250	U	250	10	50	NA	10/29/11 07:50		267270	
trans-1,2-Dichloroethene	**110**	I	250	10	50	NA	10/29/11 07:50		267270	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	10/29/11 07:50		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/29/11 07:50	
Dibromofluoromethane	103	89-119	10/29/11 07:50	
Toluene-d8	105	87-121	10/29/11 07:50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1110
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002D-045.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-028	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**27**		1.0	1	NA	11/7/11 12:21		268430	
Ethene	**21**		1.0	1	NA	11/7/11 12:21		268430	
Methane	**65**		2.0	1	NA	11/7/11 12:21		268430	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1110
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/11/11 05:42
Sample Name:	LC34-BW0002D-045.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-028	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006740.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**130**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**61**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**13**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1230
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002E-052.0-20111026		
Lab Code:	R1106024-029	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.2**		mg/L	1.0	10	NA	11/4/11 23:42	
Carbon, Total Organic (TOC), Average	9060A	**4.0**		mg/L	1.0	1	NA	10/31/11 23:34	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 13:43	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1230
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002E-052.0-20111026	**Units:**	µg/L
Lab Code:	R1106024-029	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/30/11 17:35		267361	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/30/11 17:35		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.40**	I	5.0	0.31	1	NA	10/30/11 17:35		267361	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/30/11 17:35		267361	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/30/11 17:35		267361	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/30/11 17:35		267361	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/30/11 17:35		267361	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
n-Butanol	250	U	250	11	1	NA	10/30/11 17:35		267361	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/30/11 17:35		267361	
2-Hexanone	10	U	10	0.35	1	NA	10/30/11 17:35		267361	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/30/11 17:35		267361	
Acetone	20	U	20	0.98	1	NA	10/30/11 17:35		267361	
Benzene	5.0	U	5.0	0.21	1	NA	10/30/11 17:35		267361	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Bromoform	5.0	U	5.0	0.27	1	NA	10/30/11 17:35		267361	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/30/11 17:35		267361	
Carbon Disulfide	**0.48**	I	10	0.20	1	NA	10/30/11 17:35		267361	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/30/11 17:35		267361	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/30/11 17:35		267361	
Chloroform	5.0	U	5.0	0.22	1	NA	10/30/11 17:35		267361	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/30/11 17:35		267361	
Cyclohexane	10	U	10	0.24	1	NA	10/30/11 17:35		267361	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/30/11 17:35		267361	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/30/11 17:35		267361	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Methyl Acetate	10	U	10	0.23	1	NA	10/30/11 17:35		267361	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1230
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002E-052.0-20111026	**Units:**	µg/L
Lab Code:	R1106024-029	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Methylcyclohexane	10	U	10	0.25	1	NA	10/30/11 17:35		267361	
Styrene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Toluene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Trichloroethene (TCE)	**0.35**	I	5.0	0.23	1	NA	10/30/11 17:35		267361	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
Vinyl Chloride	**69**		5.0	0.23	1	NA	10/30/11 17:35		267361	
cis-1,2-Dichloroethene	**15**		5.0	0.20	1	NA	10/30/11 17:35		267361	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/30/11 17:35		267361	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	
trans-1,2-Dichloroethene	**0.64**	I	5.0	0.20	1	NA	10/30/11 17:35		267361	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 17:35		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	10/30/11 17:35	
Dibromofluoromethane	103	89-119	10/30/11 17:35	
Toluene-d8	105	87-121	10/30/11 17:35	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1230
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002E-052.0-20111026	**Units:**	µg/L
Lab Code:	R1106024-029	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/7/11 12:33		268430	
Ethene	**3.3**		1.0	1	NA	11/7/11 12:33		268430	
Methane	**17**		2.0	1	NA	11/7/11 12:33		268430	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1230
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/10/11 11:47
Sample Name:	LC34-BW0002E-052.0-20111026	**Units:**	mg/L
Lab Code:	R1106024-029	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006721.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**1.8**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1300
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002F-059.5-20111026		
Lab Code:	R1106024-030	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.3**		mg/L	1.0	10	NA	11/4/11 23:57	
Carbon, Total Organic (TOC), Average	9060A	**3.5**		mg/L	1.0	1	NA	10/31/11 00:14	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 13:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1300
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002F-059.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-030	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/30/11 18:05		267361	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/30/11 18:05		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/30/11 18:05		267361	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/30/11 18:05		267361	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/30/11 18:05		267361	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/30/11 18:05		267361	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/30/11 18:05		267361	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
n-Butanol	250	U	250	11	1	NA	10/30/11 18:05		267361	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/30/11 18:05		267361	
2-Hexanone	10	U	10	0.35	1	NA	10/30/11 18:05		267361	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/30/11 18:05		267361	
Acetone	20	U	20	0.98	1	NA	10/30/11 18:05		267361	
Benzene	5.0	U	5.0	0.21	1	NA	10/30/11 18:05		267361	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Bromoform	5.0	U	5.0	0.27	1	NA	10/30/11 18:05		267361	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/30/11 18:05		267361	
Carbon Disulfide	10	U	10	0.20	1	NA	10/30/11 18:05		267361	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/30/11 18:05		267361	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/30/11 18:05		267361	
Chloroform	5.0	U	5.0	0.22	1	NA	10/30/11 18:05		267361	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/30/11 18:05		267361	
Cyclohexane	10	U	10	0.24	1	NA	10/30/11 18:05		267361	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/30/11 18:05		267361	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/30/11 18:05		267361	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Methyl Acetate	10	U	10	0.23	1	NA	10/30/11 18:05		267361	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1300
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002F-059.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-030	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Methylcyclohexane	10	U	10	0.25	1	NA	10/30/11 18:05		267361	
Styrene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Toluene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Trichloroethene (TCE)	**0.50**	I	5.0	0.23	1	NA	10/30/11 18:05		267361	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
Vinyl Chloride	**35**		5.0	0.23	1	NA	10/30/11 18:05		267361	
cis-1,2-Dichloroethene	**8.2**		5.0	0.20	1	NA	10/30/11 18:05		267361	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/30/11 18:05		267361	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	
trans-1,2-Dichloroethene	**0.63**	I	5.0	0.20	1	NA	10/30/11 18:05		267361	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 18:05		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	10/30/11 18:05	
Dibromofluoromethane	103	89-119	10/30/11 18:05	
Toluene-d8	105	87-121	10/30/11 18:05	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1300
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0002F-059.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-030	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/7/11 13:06		268430	
Ethene	**7.2**		1.0	1	NA	11/7/11 13:06		268430	
Methane	**8.6**		2.0	1	NA	11/7/11 13:06		268430	

Client:	GeoSyntec Consultants	**Service Request:**	RI106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1300
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/10/11 13:40
Sample Name:	LC34-BW0002F-059.5-20111026	**Units:**	mg/L
Lab Code:	RI106024-030	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006723.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1332
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003A-024.5-20111026		
Lab Code:	R1106024-031	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	11/4/11 19:58	
Carbon, Total Organic (TOC), Average	9060A	5.7		mg/L	1.0	1	NA	11/1/11 01:34	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 14:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1332
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003A-024.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-031	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	10/29/11 09:19		267270	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	10/29/11 09:19		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	**150**	I	1300	78	250	NA	10/29/11 09:19		267270	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	10/29/11 09:19		267270	
1,2,4-Trichlorobenzene	1300	U	1300	65	250	NA	10/29/11 09:19		267270	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	10/29/11 09:19		267270	
1,2-Dibromoethane	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
1,2-Dichloroethane	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
1,2-Dichloropropane	1300	U	1300	70	250	NA	10/29/11 09:19		267270	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
n-Butanol	63000	U	63000	2700	250	NA	10/29/11 09:19		267270	
2-Butanone (MEK)	2500	U	2500	130	250	NA	10/29/11 09:19		267270	
2-Hexanone	2500	U	2500	88	250	NA	10/29/11 09:19		267270	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	10/29/11 09:19		267270	
Acetone	5000	U	5000	250	250	NA	10/29/11 09:19		267270	
Benzene	1300	U	1300	53	250	NA	10/29/11 09:19		267270	
Bromodichloromethane	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Bromoform	1300	U	1300	68	250	NA	10/29/11 09:19		267270	
Bromomethane	1300	U	1300	78	250	NA	10/29/11 09:19		267270	
Carbon Disulfide	2500	U	2500	50	250	NA	10/29/11 09:19		267270	
Carbon Tetrachloride	1300	U	1300	68	250	NA	10/29/11 09:19		267270	
Chlorobenzene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Chloroethane	1300	U	1300	78	250	NA	10/29/11 09:19		267270	
Chloroform	1300	U	1300	55	250	NA	10/29/11 09:19		267270	
Chloromethane	1300	U	1300	60	250	NA	10/29/11 09:19		267270	
Cyclohexane	2500	U	2500	60	250	NA	10/29/11 09:19		267270	
Dibromochloromethane	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	10/29/11 09:19		267270	
Dichloromethane	1300	U	1300	55	250	NA	10/29/11 09:19		267270	
Ethylbenzene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Methyl Acetate	2500	U	2500	58	250	NA	10/29/11 09:19		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1332
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003A-024.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-031	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Methylcyclohexane	2500	U	2500	63	250	NA	10/29/11 09:19		267270	
Styrene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Toluene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Trichloroethene (TCE)	1300	U	1300	58	250	NA	10/29/11 09:19		267270	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
Vinyl Chloride	**2100**		1300	58	250	NA	10/29/11 09:19		267270	
cis-1,2-Dichloroethene	**30000**		1300	50	250	NA	10/29/11 09:19		267270	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
m,p-Xylenes	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
n-Butyl Acetate	1300	U	1300	53	250	NA	10/29/11 09:19		267270	
o-Xylene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	
trans-1,2-Dichloroethene	**790**	I	1300	50	250	NA	10/29/11 09:19		267270	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	10/29/11 09:19		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/29/11 09:19	
Dibromofluoromethane	103	89-119	10/29/11 09:19	
Toluene-d8	105	87-121	10/29/11 09:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1332
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003A-024.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-031	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**1.9**		1.0	1	NA	11/7/11 13:44		268430	
Ethene	**53**		1.0	1	NA	11/7/11 13:44		268430	
Methane	**94**		2.0	1	NA	11/7/11 13:44		268430	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1332
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/10/11 15:33
Sample Name:	LC34-BW0003A-024.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-031	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006725.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**9.0**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1409
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003D-045.5-20111026		
Lab Code:	R1106024-032	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**10.8**		mg/L	1.0	10	NA	11/4/11 20:12	
Carbon, Total Organic (TOC), Average	9060A	**169**		mg/L	20	20	NA	11/1/11 02:53	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 14:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1409
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003D-045.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-032	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130	U	130	5.8	25	NA	10/30/11 18:34		267361	
1,1,2,2-Tetrachloroethane	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
1,1,2-Trichloroethane	130	U	130	5.8	25	NA	10/30/11 18:34		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**410**		130	7.8	25	NA	10/30/11 18:34		267361	
1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
1,1-Dichloroethene (1,1-DCE)	130	U	130	7.3	25	NA	10/30/11 18:34		267361	
1,2,4-Trichlorobenzene	130	U	130	6.5	25	NA	10/30/11 18:34		267361	
1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	25	NA	10/30/11 18:34		267361	
1,2-Dibromoethane	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
1,2-Dichlorobenzene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
1,2-Dichloroethane	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
1,2-Dichloropropane	130	U	130	7.1	25	NA	10/30/11 18:34		267361	
1,3-Dichlorobenzene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
1,4-Dichlorobenzene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
n-Butanol	6300	U	6300	270	25	NA	10/30/11 18:34		267361	
2-Butanone (MEK)	250	U	250	13	25	NA	10/30/11 18:34		267361	
2-Hexanone	250	U	250	8.8	25	NA	10/30/11 18:34		267361	
4-Methyl-2-pentanone	250	U	250	6.8	25	NA	10/30/11 18:34		267361	
Acetone	500	U	500	25	25	NA	10/30/11 18:34		267361	
Benzene	130	U	130	5.3	25	NA	10/30/11 18:34		267361	
Bromodichloromethane	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Bromoform	130	U	130	6.8	25	NA	10/30/11 18:34		267361	
Bromomethane	130	U	130	7.8	25	NA	10/30/11 18:34		267361	
Carbon Disulfide	250	U	250	5.0	25	NA	10/30/11 18:34		267361	
Carbon Tetrachloride	130	U	130	6.8	25	NA	10/30/11 18:34		267361	
Chlorobenzene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Chloroethane	130	U	130	7.8	25	NA	10/30/11 18:34		267361	
Chloroform	130	U	130	5.5	25	NA	10/30/11 18:34		267361	
Chloromethane	130	U	130	6.0	25	NA	10/30/11 18:34		267361	
Cyclohexane	250	U	250	6.0	25	NA	10/30/11 18:34		267361	
Dibromochloromethane	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Dichlorodifluoromethane (CFC 12)	130	U	130	15	25	NA	10/30/11 18:34		267361	
Dichloromethane	130	U	130	5.5	25	NA	10/30/11 18:34		267361	
Ethylbenzene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Isopropylbenzene (Cumene)	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Methyl Acetate	250	U	250	5.8	25	NA	10/30/11 18:34		267361	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1409
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003D-045.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-032	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Methylcyclohexane	250	U	250	6.3	25	NA	10/30/11 18:34		267361	
Styrene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Tetrachloroethene (PCE)	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Toluene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Trichloroethene (TCE)	**96**	I	130	5.8	25	NA	10/30/11 18:34		267361	
Trichlorofluoromethane (CFC 11)	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
Vinyl Chloride	**1900**		130	5.8	25	NA	10/30/11 18:34		267361	
cis-1,2-Dichloroethene	**3500**		130	5.0	25	NA	10/30/11 18:34		267361	
cis-1,3-Dichloropropene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
m,p-Xylenes	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
n-Butyl Acetate	**6.5**	I	130	5.3	25	NA	10/30/11 18:34		267361	
o-Xylene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	
trans-1,2-Dichloroethene	**27**	I	130	5.0	25	NA	10/30/11 18:34		267361	
trans-1,3-Dichloropropene	130	U	130	5.0	25	NA	10/30/11 18:34		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	10/30/11 18:34	
Dibromofluoromethane	102	89-119	10/30/11 18:34	
Toluene-d8	105	87-121	10/30/11 18:34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1409
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-BW0003D-045.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-032	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**11**		1.0	1	NA	11/7/11 14:28		268433	
Ethene	**35**		1.0	1	NA	11/7/11 14:28		268433	
Methane	**1800**		50	25	NA	11/7/11 15:57		268433	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1409
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/11/11 21:29
Sample Name:	LC34-BW0003D-045.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-032	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006753.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**250**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**99**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**24**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-TB-20111026	**Units:**	µg/L
Lab Code:	R1106024-033	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 10:19		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 10:19		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 10:19		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 10:19		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 10:19		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 10:19		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 10:19		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
n-Butanol	250	U	250	11	1	NA	10/29/11 10:19		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 10:19		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 10:19		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 10:19		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 10:19		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 10:19		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 10:19		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 10:19		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 10:19		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 10:19		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 10:19		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 10:19		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 10:19		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 10:19		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 10:19		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 10:19		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 10:19		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-TB-20111026	**Units:**	µg/L
Lab Code:	R1106024-033	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 10:19		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Toluene	**0.21**	I	5.0	0.20	1	NA	10/29/11 10:19		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 10:19		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 10:19		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 10:19		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 10:19		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/29/11 10:19	
Dibromofluoromethane	101	89-119	10/29/11 10:19	
Toluene-d8	105	87-121	10/29/11 10:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0923
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0007-038.5-20111026		
Lab Code:	R1106024-034	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**468**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**13.6**		mg/L	1.0	10	NA	10/27/11 21:06	
Carbon, Total Organic (TOC), Average	9060A	**246**		mg/L	20	20	NA	11/1/11 03:33	
Chloride	300.0	**437**		mg/L	20	100	NA	10/28/11 13:59	
Iodide	300.0	**14.0**		mg/L	2.0	10	NA	10/27/11 14:37	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/27/11 21:06	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/28/11 13:59	*
Sulfate	300.0	**2.1**		mg/L	2.0	10	NA	10/27/11 21:06	
Sulfide, Total	SM 4500-S2- F	**17.1**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0923
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0007-038.5-20111026 Dissolved		
Lab Code:	R1106024-035	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 11:09	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/4/11 11:09	
Manganese, Dissolved	6010C	**20**		µg/L	10	1	10/31/11	11/4/11 11:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0923
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0007-038.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-034	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	10/30/11 19:04		267361	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	10/30/11 19:04		267361	
1,1,2-Trichloroethane	500	U	500	23	100	NA	10/30/11 19:04		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		500	31	100	NA	10/30/11 19:04		267361	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	10/30/11 19:04		267361	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	10/30/11 19:04		267361	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	10/30/11 19:04		267361	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	10/30/11 19:04		267361	
1,2-Dibromoethane	500	U	500	20	100	NA	10/30/11 19:04		267361	
1,2-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 19:04		267361	
1,2-Dichloroethane	500	U	500	20	100	NA	10/30/11 19:04		267361	
1,2-Dichloropropane	500	U	500	29	100	NA	10/30/11 19:04		267361	
1,3-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 19:04		267361	
1,4-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 19:04		267361	
n-Butanol	**1800**	I	25000	1100	100	NA	10/30/11 19:04		267361	
2-Butanone (MEK)	1000	U	1000	51	100	NA	10/30/11 19:04		267361	
2-Hexanone	1000	U	1000	35	100	NA	10/30/11 19:04		267361	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	10/30/11 19:04		267361	
Acetone	2000	U	2000	98	100	NA	10/30/11 19:04		267361	
Benzene	500	U	500	21	100	NA	10/30/11 19:04		267361	
Bromodichloromethane	500	U	500	20	100	NA	10/30/11 19:04		267361	
Bromoform	500	U	500	27	100	NA	10/30/11 19:04		267361	
Bromomethane	500	U	500	31	100	NA	10/30/11 19:04		267361	
Carbon Disulfide	1000	U	1000	20	100	NA	10/30/11 19:04		267361	
Carbon Tetrachloride	500	U	500	27	100	NA	10/30/11 19:04		267361	
Chlorobenzene	500	U	500	20	100	NA	10/30/11 19:04		267361	
Chloroethane	500	U	500	31	100	NA	10/30/11 19:04		267361	
Chloroform	500	U	500	22	100	NA	10/30/11 19:04		267361	
Chloromethane	500	U	500	24	100	NA	10/30/11 19:04		267361	
Cyclohexane	1000	U	1000	24	100	NA	10/30/11 19:04		267361	
Dibromochloromethane	500	U	500	20	100	NA	10/30/11 19:04		267361	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	10/30/11 19:04		267361	
Dichloromethane	500	U	500	22	100	NA	10/30/11 19:04		267361	
Ethylbenzene	500	U	500	20	100	NA	10/30/11 19:04		267361	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	10/30/11 19:04		267361	
Methyl Acetate	1000	U	1000	23	100	NA	10/30/11 19:04		267361	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0923
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0007-038.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-034	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	10/30/11 19:04		267361	
Methylcyclohexane	1000	U	1000	25	100	NA	10/30/11 19:04		267361	
Styrene	500	U	500	20	100	NA	10/30/11 19:04		267361	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	10/30/11 19:04		267361	
Toluene	500	U	500	20	100	NA	10/30/11 19:04		267361	
Trichloroethene (TCE)	**3900**		500	23	100	NA	10/30/11 19:04		267361	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	10/30/11 19:04		267361	
Vinyl Chloride	**4800**		500	23	100	NA	10/30/11 19:04		267361	
cis-1,2-Dichloroethene	**16000**		500	20	100	NA	10/30/11 19:04		267361	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	10/30/11 19:04		267361	
m,p-Xylenes	500	U	500	20	100	NA	10/30/11 19:04		267361	
n-Butyl Acetate	500	U	500	21	100	NA	10/30/11 19:04		267361	
o-Xylene	500	U	500	20	100	NA	10/30/11 19:04		267361	
trans-1,2-Dichloroethene	**170**	I	500	20	100	NA	10/30/11 19:04		267361	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	10/30/11 19:04		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	10/30/11 19:04	
Dibromofluoromethane	103	89-119	10/30/11 19:04	
Toluene-d8	106	87-121	10/30/11 19:04	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0923
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0007-038.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-034	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**39**		5.0	5	NA	11/7/11 14:40		268433	
Ethene	**110**		5.0	5	NA	11/7/11 14:40		268433	
Methane	**330**		10	5	NA	11/7/11 14:40		268433	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 0923
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/12/11 00:19
Sample Name:	LC34-RW0007-038.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-034	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006756.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**270**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**270**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**17**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1005
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0008-052.0-20111026		
Lab Code:	R1106024-036	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**288**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**4.5**		mg/L	1.0	10	NA	10/27/11 21:20	
Carbon, Total Organic (TOC), Average	9060A	**65.0**		mg/L	4.0	4	NA	11/1/11 04:13	
Chloride	300.0	**632**		mg/L	20	100	NA	10/28/11 14:13	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 14:45	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/27/11 21:20	
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/28/11 14:13	*
Sulfate	300.0	**14.2**		mg/L	2.0	10	NA	10/27/11 21:20	
Sulfide, Total	SM 4500-S2- F	**14.7**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1005
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0008-052.0-20111026 Dissolved		
Lab Code:	R1106024-037	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 11:15	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/4/11 11:15	
Manganese, Dissolved	6010C	**15**		µg/L	10	1	10/31/11	11/4/11 11:15	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1005
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0008-052.0-20111026	**Units:**	µg/L
Lab Code:	R1106024-036	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50	U	50	2.4	10	NA	10/29/11 11:18		267270	
1,1,2,2-Tetrachloroethane	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
1,1,2-Trichloroethane	50	U	50	2.4	10	NA	10/29/11 11:18		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1200**		50	3.1	10	NA	10/29/11 11:18		267270	
1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
1,1-Dichloroethene (1,1-DCE)	50	U	50	2.9	10	NA	10/29/11 11:18		267270	
1,2,4-Trichlorobenzene	50	U	50	2.6	10	NA	10/29/11 11:18		267270	
1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	10	NA	10/29/11 11:18		267270	
1,2-Dibromoethane	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
1,2-Dichlorobenzene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
1,2-Dichloroethane	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
1,2-Dichloropropane	50	U	50	2.9	10	NA	10/29/11 11:18		267270	
1,3-Dichlorobenzene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
1,4-Dichlorobenzene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
n-Butanol	2500	U	2500	110	10	NA	10/29/11 11:18		267270	
2-Butanone (MEK)	100	U	100	5.1	10	NA	10/29/11 11:18		267270	
2-Hexanone	100	U	100	3.5	10	NA	10/29/11 11:18		267270	
4-Methyl-2-pentanone	100	U	100	2.7	10	NA	10/29/11 11:18		267270	
Acetone	200	U	200	9.8	10	NA	10/29/11 11:18		267270	
Benzene	50	U	50	2.1	10	NA	10/29/11 11:18		267270	
Bromodichloromethane	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Bromoform	50	U	50	2.7	10	NA	10/29/11 11:18		267270	
Bromomethane	50	U	50	3.1	10	NA	10/29/11 11:18		267270	
Carbon Disulfide	100	U	100	2.0	10	NA	10/29/11 11:18		267270	
Carbon Tetrachloride	50	U	50	2.7	10	NA	10/29/11 11:18		267270	
Chlorobenzene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Chloroethane	50	U	50	3.1	10	NA	10/29/11 11:18		267270	
Chloroform	50	U	50	2.2	10	NA	10/29/11 11:18		267270	
Chloromethane	50	U	50	2.4	10	NA	10/29/11 11:18		267270	
Cyclohexane	100	U	100	2.4	10	NA	10/29/11 11:18		267270	
Dibromochloromethane	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	10	NA	10/29/11 11:18		267270	
Dichloromethane	50	U	50	2.2	10	NA	10/29/11 11:18		267270	
Ethylbenzene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Isopropylbenzene (Cumene)	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Methyl Acetate	100	U	100	2.4	10	NA	10/29/11 11:18		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1005
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0008-052.0-20111026	**Units:**	µg/L
Lab Code:	R1106024-036	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Methylcyclohexane	100	U	100	2.5	10	NA	10/29/11 11:18		267270	
Styrene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Tetrachloroethene (PCE)	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Toluene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Trichloroethene (TCE)	**1900**		50	2.4	10	NA	10/29/11 11:18		267270	
Trichlorofluoromethane (CFC 11)	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
Vinyl Chloride	**630**		50	2.4	10	NA	10/29/11 11:18		267270	
cis-1,2-Dichloroethene	**1700**		50	2.0	10	NA	10/29/11 11:18		267270	
cis-1,3-Dichloropropene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
m,p-Xylenes	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
n-Butyl Acetate	50	U	50	2.1	10	NA	10/29/11 11:18		267270	
o-Xylene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	
trans-1,2-Dichloroethene	**12**	I	50	2.0	10	NA	10/29/11 11:18		267270	
trans-1,3-Dichloropropene	50	U	50	2.0	10	NA	10/29/11 11:18		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/29/11 11:18	
Dibromofluoromethane	103	89-119	10/29/11 11:18	
Toluene-d8	104	87-121	10/29/11 11:18	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1005
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-RW0008-052.0-20111026	**Units:**	µg/L
Lab Code:	R1106024-036	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**8.8**		5.0	5	NA	11/7/11 14:49		268433	
Ethene	**95**		5.0	5	NA	11/7/11 14:49		268433	
Methane	**400**		10	5	NA	11/7/11 14:49		268433	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1005
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/12/11 05:59
Sample Name:	LC34-RW0008-052.0-20111026	**Units:**	mg/L
Lab Code:	R1106024-036	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006762.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**130**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**19**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.4**		1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/26/11 1100
Date Received: 10/27/11

Sample Name: LC34-IW0002I-027.5-20111026
Lab Code: R1106024-038

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**285**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**2.7**		mg/L	1.0	10	NA	10/27/11 21:34	
Carbon, Total Organic (TOC), Average	9060A	**31.1**		mg/L	2.0	2	NA	11/1/11 04:53	
Chloride	300.0	**65.4**		mg/L	2.0	10	NA	10/27/11 21:34	
Iodide	300.0	**2.5**		mg/L	2.0	10	NA	10/27/11 14:53	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/27/11 21:34	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/27/11 21:34	
Sulfate	300.0	**30.9**		mg/L	2.0	10	NA	10/27/11 21:34	
Sulfide, Total	SM 4500-S2- F	**2.7**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1100
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002I-027.5-20111026 Dissolved		
Lab Code:	R1106024-039	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 11:31	
Iron, Dissolved	6010C	**550**		µg/L	100	1	10/31/11	11/4/11 11:31	
Manganese, Dissolved	6010C	**100**		µg/L	10	1	10/31/11	11/4/11 11:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1100
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002I-027.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-038	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	10/30/11 19:34		267361	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	10/30/11 19:34		267361	
1,1,2-Trichloroethane	500	U	500	23	100	NA	10/30/11 19:34		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	**34000**		1300	78	250	NA	10/31/11 16:49		267468	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	10/30/11 19:34		267361	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	10/30/11 19:34		267361	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	10/30/11 19:34		267361	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	10/30/11 19:34		267361	
1,2-Dibromoethane	500	U	500	20	100	NA	10/30/11 19:34		267361	
1,2-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 19:34		267361	
1,2-Dichloroethane	500	U	500	20	100	NA	10/30/11 19:34		267361	
1,2-Dichloropropane	500	U	500	29	100	NA	10/30/11 19:34		267361	
1,3-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 19:34		267361	
1,4-Dichlorobenzene	500	U	500	20	100	NA	10/30/11 19:34		267361	
n-Butanol	25000	U	25000	1100	100	NA	10/30/11 19:34		267361	
2-Butanone (MEK)	1000	U	1000	51	100	NA	10/30/11 19:34		267361	
2-Hexanone	1000	U	1000	35	100	NA	10/30/11 19:34		267361	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	10/30/11 19:34		267361	
Acetone	2000	U	2000	98	100	NA	10/30/11 19:34		267361	
Benzene	500	U	500	21	100	NA	10/30/11 19:34		267361	
Bromodichloromethane	500	U	500	20	100	NA	10/30/11 19:34		267361	
Bromoform	500	U	500	27	100	NA	10/30/11 19:34		267361	
Bromomethane	500	U	500	31	100	NA	10/30/11 19:34		267361	
Carbon Disulfide	1000	U	1000	20	100	NA	10/30/11 19:34		267361	
Carbon Tetrachloride	500	U	500	27	100	NA	10/30/11 19:34		267361	
Chlorobenzene	500	U	500	20	100	NA	10/30/11 19:34		267361	
Chloroethane	500	U	500	31	100	NA	10/30/11 19:34		267361	
Chloroform	500	U	500	22	100	NA	10/30/11 19:34		267361	
Chloromethane	500	U	500	24	100	NA	10/30/11 19:34		267361	
Cyclohexane	1000	U	1000	24	100	NA	10/30/11 19:34		267361	
Dibromochloromethane	500	U	500	20	100	NA	10/30/11 19:34		267361	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	10/30/11 19:34		267361	
Dichloromethane	500	U	500	22	100	NA	10/30/11 19:34		267361	
Ethylbenzene	500	U	500	20	100	NA	10/30/11 19:34		267361	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	10/30/11 19:34		267361	
Methyl Acetate	1000	U	1000	23	100	NA	10/30/11 19:34		267361	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1100
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002I-027.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-038	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	10/30/11 19:34		267361	
Methylcyclohexane	1000	U	1000	25	100	NA	10/30/11 19:34		267361	
Styrene	500	U	500	20	100	NA	10/30/11 19:34		267361	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	10/30/11 19:34		267361	
Toluene	500	U	500	20	100	NA	10/30/11 19:34		267361	
Trichloroethene (TCE)	**57**	I	500	23	100	NA	10/30/11 19:34		267361	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	10/30/11 19:34		267361	
Vinyl Chloride	**930**		500	23	100	NA	10/30/11 19:34		267361	
cis-1,2-Dichloroethene	**15000**		500	20	100	NA	10/30/11 19:34		267361	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	10/30/11 19:34		267361	
m,p-Xylenes	500	U	500	20	100	NA	10/30/11 19:34		267361	
n-Butyl Acetate	500	U	500	21	100	NA	10/30/11 19:34		267361	
o-Xylene	500	U	500	20	100	NA	10/30/11 19:34		267361	
trans-1,2-Dichloroethene	**320**	I	500	20	100	NA	10/30/11 19:34		267361	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	10/30/11 19:34		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	10/30/11 19:34	
Dibromofluoromethane	103	89-119	10/30/11 19:34	
Toluene-d8	106	87-121	10/30/11 19:34	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1100
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002I-027.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-038	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**6.2**		1.0	1	NA	11/7/11 15:05		268433	
Ethene	**29**		1.0	1	NA	11/7/11 15:05		268433	
Methane	**69**		2.0	1	NA	11/7/11 15:05		268433	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1100
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/12/11 07:52
Sample Name:	LC34-IW0002I-027.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-038	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006764.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**55**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**13**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**2.7**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1232
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D-037.5-20111026		
Lab Code:	R1106024-040	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**642**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**20.3**		mg/L	1.0	10	NA	10/28/11 00:09	
Carbon, Total Organic (TOC), Average	9060A	**590**		mg/L	100	100	NA	10/29/11 08:21	
Chloride	300.0	**227**		mg/L	12	60	NA	10/28/11 14:27	
Iodide	300.0	**18.3**		mg/L	2.0	10	NA	10/27/11 15:16	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/28/11 00:09	
Nitrite as Nitrogen	300.0	6.0	U	mg/L	6.0	60	NA	10/28/11 14:27	*
Sulfate	300.0	**8.0**		mg/L	2.0	10	NA	10/28/11 00:09	
Sulfide, Total	SM 4500-S2- F	**10.5**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1232
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D-037.5-20111026 Dissolved		
Lab Code:	R1106024-041	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 11:36	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/4/11 11:36	
Manganese, Dissolved	6010C	**98**		µg/L	10	1	10/31/11	11/4/11 11:36	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1232
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D-037.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-040	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	10/31/11 17:19		267468	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	10/31/11 17:19		267468	
1,1,2-Trichloroethane	500	U	500	23	100	NA	10/31/11 17:19		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	**3700**		500	31	100	NA	10/31/11 17:19		267468	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	10/31/11 17:19		267468	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	10/31/11 17:19		267468	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	10/31/11 17:19		267468	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	10/31/11 17:19		267468	
1,2-Dibromoethane	500	U	500	20	100	NA	10/31/11 17:19		267468	
1,2-Dichlorobenzene	500	U	500	20	100	NA	10/31/11 17:19		267468	
1,2-Dichloroethane	500	U	500	20	100	NA	10/31/11 17:19		267468	
1,2-Dichloropropane	500	U	500	29	100	NA	10/31/11 17:19		267468	
1,3-Dichlorobenzene	500	U	500	20	100	NA	10/31/11 17:19		267468	
1,4-Dichlorobenzene	500	U	500	20	100	NA	10/31/11 17:19		267468	
n-Butanol	**2700**	I	25000	1100	100	NA	10/31/11 17:19		267468	
2-Butanone (MEK)	1000	U	1000	51	100	NA	10/31/11 17:19		267468	
2-Hexanone	1000	U	1000	35	100	NA	10/31/11 17:19		267468	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	10/31/11 17:19		267468	
Acetone	2000	U	2000	98	100	NA	10/31/11 17:19		267468	
Benzene	500	U	500	21	100	NA	10/31/11 17:19		267468	
Bromodichloromethane	500	U	500	20	100	NA	10/31/11 17:19		267468	
Bromoform	500	U	500	27	100	NA	10/31/11 17:19		267468	
Bromomethane	500	U	500	31	100	NA	10/31/11 17:19		267468	
Carbon Disulfide	1000	U	1000	20	100	NA	10/31/11 17:19		267468	
Carbon Tetrachloride	500	U	500	27	100	NA	10/31/11 17:19		267468	
Chlorobenzene	500	U	500	20	100	NA	10/31/11 17:19		267468	
Chloroethane	500	U	500	31	100	NA	10/31/11 17:19		267468	
Chloroform	500	U	500	22	100	NA	10/31/11 17:19		267468	
Chloromethane	500	U	500	24	100	NA	10/31/11 17:19		267468	
Cyclohexane	1000	U	1000	24	100	NA	10/31/11 17:19		267468	
Dibromochloromethane	500	U	500	20	100	NA	10/31/11 17:19		267468	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	10/31/11 17:19		267468	
Dichloromethane	500	U	500	22	100	NA	10/31/11 17:19		267468	
Ethylbenzene	500	U	500	20	100	NA	10/31/11 17:19		267468	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	10/31/11 17:19		267468	
Methyl Acetate	1000	U	1000	23	100	NA	10/31/11 17:19		267468	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1232
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D-037.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-040	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	10/31/11 17:19		267468	
Methylcyclohexane	1000	U	1000	25	100	NA	10/31/11 17:19		267468	
Styrene	500	U	500	20	100	NA	10/31/11 17:19		267468	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	10/31/11 17:19		267468	
Toluene	500	U	500	20	100	NA	10/31/11 17:19		267468	
Trichloroethene (TCE)	**73**	I	500	23	100	NA	10/31/11 17:19		267468	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	10/31/11 17:19		267468	
Vinyl Chloride	**4000**		500	23	100	NA	10/31/11 17:19		267468	
cis-1,2-Dichloroethene	**16000**		500	20	100	NA	10/31/11 17:19		267468	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	10/31/11 17:19		267468	
m,p-Xylenes	500	U	500	20	100	NA	10/31/11 17:19		267468	
n-Butyl Acetate	500	U	500	21	100	NA	10/31/11 17:19		267468	
o-Xylene	500	U	500	20	100	NA	10/31/11 17:19		267468	
trans-1,2-Dichloroethene	**290**	I	500	20	100	NA	10/31/11 17:19		267468	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	10/31/11 17:19		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	10/31/11 17:19	
Dibromofluoromethane	103	89-119	10/31/11 17:19	
Toluene-d8	103	87-121	10/31/11 17:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1232
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D-037.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-040	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**48**		2.0	2	NA	11/7/11 15:16		268433	
Ethene	**120**		2.0	2	NA	11/7/11 15:16		268433	
Methane	**230**		8.0	4	NA	11/7/11 15:28		268433	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1232
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/12/11 14:28
Sample Name:	LC34-IW0002D-037.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-040	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006771.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**390**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**810**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**49**		5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1340
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D1-052.5-20111026		
Lab Code:	R1106024-042	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**244**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**3.5**		mg/L	1.0	10	NA	10/28/11 00:23	
Carbon, Total Organic (TOC), Average	9060A	**42.7**		mg/L	4.0	4	NA	11/2/11 19:17	
Chloride	300.0	**650**		mg/L	20	100	NA	10/28/11 11:53	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	10/27/11 15:24	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/28/11 14:41	*
Nitrite as Nitrogen	300.0	10	U	mg/L	10	100	NA	10/28/11 11:53	
Sulfate	300.0	**43.3**		mg/L	2.0	10	NA	10/28/11 00:23	
Sulfide, Total	SM 4500-S2- F	**9.1**		mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1340
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D1-052.5-20111026 Dissolved		
Lab Code:	R1106024-043	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 11:42	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/4/11 11:42	
Manganese, Dissolved	6010C	13		µg/L	10	1	10/31/11	11/4/11 11:42	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	Service Request:	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	Date Collected:	10/26/11 1340
Sample Matrix:	Water	Date Received:	10/27/11
Sample Name:	LC34-IW0002D1-052.5-20111026	Units:	µg/L
Lab Code:	R1106024-042	Basis:	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/31/11 15:19		267468	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/31/11 15:19		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.51**	I	5.0	0.31	1	NA	10/31/11 15:19		267468	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/31/11 15:19		267468	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/31/11 15:19		267468	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/31/11 15:19		267468	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/31/11 15:19		267468	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
n-Butanol	250	U	250	11	1	NA	10/31/11 15:19		267468	
2-Butanone (MEK)	**0.53**	I	10	0.51	1	NA	10/31/11 15:19		267468	
2-Hexanone	10	U	10	0.35	1	NA	10/31/11 15:19		267468	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/31/11 15:19		267468	
Acetone	**1.8**	I	20	0.98	1	NA	10/31/11 15:19		267468	
Benzene	5.0	U	5.0	0.21	1	NA	10/31/11 15:19		267468	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Bromoform	5.0	U	5.0	0.27	1	NA	10/31/11 15:19		267468	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/31/11 15:19		267468	
Carbon Disulfide	**1.5**	I	10	0.20	1	NA	10/31/11 15:19		267468	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/31/11 15:19		267468	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/31/11 15:19		267468	
Chloroform	5.0	U	5.0	0.22	1	NA	10/31/11 15:19		267468	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/31/11 15:19		267468	
Cyclohexane	10	U	10	0.24	1	NA	10/31/11 15:19		267468	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/31/11 15:19		267468	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/31/11 15:19		267468	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Methyl Acetate	10	U	10	0.23	1	NA	10/31/11 15:19		267468	

Client:	GeoSyntec Consultants	Service Request:	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	Date Collected:	10/26/11 1340
Sample Matrix:	Water	Date Received:	10/27/11
Sample Name:	LC34-IW0002D1-052.5-20111026	Units:	µg/L
Lab Code:	R1106024-042	Basis:	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Methylcyclohexane	10	U	10	0.25	1	NA	10/31/11 15:19		267468	
Styrene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Toluene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Trichloroethene (TCE)	**0.81**	I	5.0	0.23	1	NA	10/31/11 15:19		267468	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
Vinyl Chloride	**60**		5.0	0.23	1	NA	10/31/11 15:19		267468	
cis-1,2-Dichloroethene	**4.3**	I	5.0	0.20	1	NA	10/31/11 15:19		267468	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
n-Butyl Acetate	**0.36**	I	5.0	0.21	1	NA	10/31/11 15:19		267468	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	
trans-1,2-Dichloroethene	**1.5**	I	5.0	0.20	1	NA	10/31/11 15:19		267468	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 15:19		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	10/31/11 15:19	
Dibromofluoromethane	103	89-119	10/31/11 15:19	
Toluene-d8	103	87-121	10/31/11 15:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1340
Sample Matrix:	Water	**Date Received:**	10/27/11
Sample Name:	LC34-IW0002D1-052.5-20111026	**Units:**	µg/L
Lab Code:	R1106024-042	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**2.9**		1.0	1	NA	11/7/11 15:38		268433	
Ethene	**140**		5.0	5	NA	11/7/11 15:48		268433	
Methane	**390**		10	5	NA	11/7/11 15:48		268433	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11 1340
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/12/11 12:35
Sample Name:	LC34-IW0002D1-052.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-042	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006769.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	93		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	5.0		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003B-031.5-20111027		
Lab Code:	R1106024-044	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.2**		mg/L	1.0	10	NA	11/8/11 17:20	
Carbon, Total Organic (TOC), Average	9060A	**10.6**		mg/L	1.0	1	NA	11/4/11 20:18	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	11/11/11 11:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003B-031.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-044	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2500	U	2500	120	500	NA	10/31/11 17:49		267468	
1,1,2,2-Tetrachloroethane	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
1,1,2-Trichloroethane	2500	U	2500	120	500	NA	10/31/11 17:49		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	2500	U	2500	160	500	NA	10/31/11 17:49		267468	
1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	500	NA	10/31/11 17:49		267468	
1,2,4-Trichlorobenzene	2500	U	2500	130	500	NA	10/31/11 17:49		267468	
1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	500	NA	10/31/11 17:49		267468	
1,2-Dibromoethane	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
1,2-Dichlorobenzene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
1,2-Dichloroethane	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
1,2-Dichloropropane	2500	U	2500	140	500	NA	10/31/11 17:49		267468	
1,3-Dichlorobenzene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
1,4-Dichlorobenzene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
n-Butanol	130000	U	130000	5300	500	NA	10/31/11 17:49		267468	
2-Butanone (MEK)	5000	U	5000	260	500	NA	10/31/11 17:49		267468	
2-Hexanone	5000	U	5000	180	500	NA	10/31/11 17:49		267468	
4-Methyl-2-pentanone	5000	U	5000	140	500	NA	10/31/11 17:49		267468	
Acetone	10000	U	10000	490	500	NA	10/31/11 17:49		267468	
Benzene	2500	U	2500	110	500	NA	10/31/11 17:49		267468	
Bromodichloromethane	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Bromoform	2500	U	2500	140	500	NA	10/31/11 17:49		267468	
Bromomethane	2500	U	2500	160	500	NA	10/31/11 17:49		267468	
Carbon Disulfide	5000	U	5000	100	500	NA	10/31/11 17:49		267468	
Carbon Tetrachloride	2500	U	2500	140	500	NA	10/31/11 17:49		267468	
Chlorobenzene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Chloroethane	2500	U	2500	160	500	NA	10/31/11 17:49		267468	
Chloroform	2500	U	2500	110	500	NA	10/31/11 17:49		267468	
Chloromethane	2500	U	2500	120	500	NA	10/31/11 17:49		267468	
Cyclohexane	5000	U	5000	120	500	NA	10/31/11 17:49		267468	
Dibromochloromethane	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	500	NA	10/31/11 17:49		267468	
Dichloromethane	2500	U	2500	110	500	NA	10/31/11 17:49		267468	
Ethylbenzene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Isopropylbenzene (Cumene)	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Methyl Acetate	5000	U	5000	120	500	NA	10/31/11 17:49		267468	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003B-031.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-044	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Methylcyclohexane	5000	U	5000	130	500	NA	10/31/11 17:49		267468	
Styrene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Tetrachloroethene (PCE)	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Toluene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Trichloroethene (TCE)	2500	U	2500	120	500	NA	10/31/11 17:49		267468	
Trichlorofluoromethane (CFC 11)	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
Vinyl Chloride	**6900**		2500	120	500	NA	10/31/11 17:49		267468	
cis-1,2-Dichloroethene	**48000**		2500	100	500	NA	10/31/11 17:49		267468	
cis-1,3-Dichloropropene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
m,p-Xylenes	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
n-Butyl Acetate	2500	U	2500	110	500	NA	10/31/11 17:49		267468	
o-Xylene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	
trans-1,2-Dichloroethene	**1300**	I	2500	100	500	NA	10/31/11 17:49		267468	
trans-1,3-Dichloropropene	2500	U	2500	100	500	NA	10/31/11 17:49		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	10/31/11 17:49	
Dibromofluoromethane	103	89-119	10/31/11 17:49	
Toluene-d8	103	87-121	10/31/11 17:49	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003B-031.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-044	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**2.3**		1.0	1	NA	11/8/11 15:29		268565	
Ethene	**99**		1.0	1	NA	11/8/11 15:29		268565	
Methane	**95**		2.0	1	NA	11/8/11 15:29		268565	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
		Date Analyzed:	11/14/11 14:53
Sample Name:	LC34-BW0003B-031.5-20111027	**Units:**	mg/L
Lab Code:	R1106024-044	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269468
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111411\X0006779.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**16**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**2.7**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003C-038.5-20111027		
Lab Code:	R1106024-045	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**313**		mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	**1.5**		mg/L	1.0	10	NA	11/4/11 20:40	
Carbon, Total Organic (TOC), Average	9060A	**14.5**		mg/L	1.0	1	NA	11/4/11 20:58	
Chloride	300.0	**360**		mg/L	16	80	NA	10/29/11 15:58	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	11/11/11 11:47	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	10/28/11 22:10	
Nitrite as Nitrogen	300.0	8.0	U	mg/L	8.0	80	NA	10/29/11 15:58	*
Sulfate	300.0	**13.3**		mg/L	2.0	10	NA	10/28/11 22:10	
Sulfide, Total	SM 4500-S2- F	**4.9**		mg/L	1.0	1	NA	11/1/11 10:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003C-038.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-045	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	12	50	NA	11/1/11 17:26		267722	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	11/1/11 17:26		267722	
1,1,2-Trichloroethane	250	U	250	12	50	NA	11/1/11 17:26		267722	
1,1,2-Trichloro-1,2,2-trifluoroethane	**23**	I	250	16	50	NA	11/1/11 17:26		267722	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	11/1/11 17:26		267722	
1,1-Dichloroethene (1,1-DCE)	250	U	250	15	50	NA	11/1/11 17:26		267722	
1,2,4-Trichlorobenzene	250	U	250	13	50	NA	11/1/11 17:26		267722	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	50	NA	11/1/11 17:26		267722	
1,2-Dibromoethane	250	U	250	10	50	NA	11/1/11 17:26		267722	
1,2-Dichlorobenzene	250	U	250	10	50	NA	11/1/11 17:26		267722	
1,2-Dichloroethane	250	U	250	10	50	NA	11/1/11 17:26		267722	
1,2-Dichloropropane	250	U	250	15	50	NA	11/1/11 17:26		267722	
1,3-Dichlorobenzene	250	U	250	10	50	NA	11/1/11 17:26		267722	
1,4-Dichlorobenzene	250	U	250	10	50	NA	11/1/11 17:26		267722	
n-Butanol	13000	U	13000	530	50	NA	11/1/11 17:26		267722	
2-Butanone (MEK)	500	U	500	26	50	NA	11/1/11 17:26		267722	
2-Hexanone	500	U	500	18	50	NA	11/1/11 17:26		267722	
4-Methyl-2-pentanone	500	U	500	14	50	NA	11/1/11 17:26		267722	
Acetone	1000	U	1000	49	50	NA	11/1/11 17:26		267722	
Benzene	250	U	250	11	50	NA	11/1/11 17:26		267722	
Bromodichloromethane	250	U	250	10	50	NA	11/1/11 17:26		267722	
Bromoform	250	U	250	14	50	NA	11/1/11 17:26		267722	
Bromomethane	250	U	250	16	50	NA	11/1/11 17:26		267722	
Carbon Disulfide	500	U	500	10	50	NA	11/1/11 17:26		267722	
Carbon Tetrachloride	250	U	250	14	50	NA	11/1/11 17:26		267722	
Chlorobenzene	250	U	250	10	50	NA	11/1/11 17:26		267722	
Chloroethane	250	U	250	16	50	NA	11/1/11 17:26		267722	
Chloroform	250	U	250	11	50	NA	11/1/11 17:26		267722	
Chloromethane	250	U	250	12	50	NA	11/1/11 17:26		267722	
Cyclohexane	500	U	500	12	50	NA	11/1/11 17:26		267722	
Dibromochloromethane	250	U	250	10	50	NA	11/1/11 17:26		267722	
Dichlorodifluoromethane (CFC 12)	250	U	250	29	50	NA	11/1/11 17:26		267722	
Dichloromethane	250	U	250	11	50	NA	11/1/11 17:26		267722	
Ethylbenzene	250	U	250	10	50	NA	11/1/11 17:26		267722	
Isopropylbenzene (Cumene)	250	U	250	10	50	NA	11/1/11 17:26		267722	
Methyl Acetate	500	U	500	12	50	NA	11/1/11 17:26		267722	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003C-038.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-045	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	10	50	NA	11/1/11 17:26		267722	
Methylcyclohexane	500	U	500	13	50	NA	11/1/11 17:26		267722	
Styrene	250	U	250	10	50	NA	11/1/11 17:26		267722	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	11/1/11 17:26		267722	
Toluene	250	U	250	10	50	NA	11/1/11 17:26		267722	
Trichloroethene (TCE)	250	U	250	12	50	NA	11/1/11 17:26		267722	
Trichlorofluoromethane (CFC 11)	250	U	250	10	50	NA	11/1/11 17:26		267722	
Vinyl Chloride	**9400**		250	12	50	NA	11/1/11 17:26		267722	
cis-1,2-Dichloroethene	**1800**		250	10	50	NA	11/1/11 17:26		267722	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	11/1/11 17:26		267722	
m,p-Xylenes	250	U	250	10	50	NA	11/1/11 17:26		267722	
n-Butyl Acetate	250	U	250	11	50	NA	11/1/11 17:26		267722	
o-Xylene	250	U	250	10	50	NA	11/1/11 17:26		267722	
trans-1,2-Dichloroethene	**180**	I	250	10	50	NA	11/1/11 17:26		267722	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	11/1/11 17:26		267722	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	11/1/11 17:26	
Dibromofluoromethane	103	89-119	11/1/11 17:26	
Toluene-d8	104	87-121	11/1/11 17:26	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003C-038.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-045	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**12**		5.0	5	NA	11/8/11 15:39		268565	
Ethene	**770**		10	10	NA	11/8/11 15:49		268565	
Methane	**300**		10	5	NA	11/8/11 15:39		268565	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
		Date Analyzed:	11/14/11 16:46
Sample Name:	LC34-BW0003C-038.5-20111027	**Units:**	mg/L
Lab Code:	R1106024-045	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269468
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111411\X0006781.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**25**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003E-052.5-20111027		
Lab Code:	R1106024-046	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**8.8**		mg/L	1.0	10	NA	11/8/11 18:45	
Carbon, Total Organic (TOC), Average	9060A	**56.3**		mg/L	4.0	4	NA	11/3/11 00:06	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	11/11/11 11:55	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003E-052.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-046	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	11/2/11 13:07		267849	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	11/2/11 13:07		267849	
1,1,2-Trichloro-1,2,2-trifluoroethane	**4.9**	I	5.0	0.31	1	NA	11/2/11 13:07		267849	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	11/2/11 13:07		267849	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	11/2/11 13:07		267849	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	11/2/11 13:07		267849	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	11/2/11 13:07		267849	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
n-Butanol	**70**	I	250	11	1	NA	11/2/11 13:07		267849	
2-Butanone (MEK)	10	U	10	0.51	1	NA	11/2/11 13:07		267849	
2-Hexanone	10	U	10	0.35	1	NA	11/2/11 13:07		267849	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	11/2/11 13:07		267849	
Acetone	20	U	20	0.98	1	NA	11/2/11 13:07		267849	
Benzene	5.0	U	5.0	0.21	1	NA	11/2/11 13:07		267849	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Bromoform	5.0	U	5.0	0.27	1	NA	11/2/11 13:07		267849	
Bromomethane	5.0	U	5.0	0.31	1	NA	11/2/11 13:07		267849	
Carbon Disulfide	**0.88**	I	10	0.20	1	NA	11/2/11 13:07		267849	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	11/2/11 13:07		267849	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Chloroethane	5.0	U	5.0	0.31	1	NA	11/2/11 13:07		267849	
Chloroform	5.0	U	5.0	0.22	1	NA	11/2/11 13:07		267849	
Chloromethane	5.0	U	5.0	0.24	1	NA	11/2/11 13:07		267849	
Cyclohexane	10	U	10	0.24	1	NA	11/2/11 13:07		267849	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	11/2/11 13:07		267849	
Dichloromethane	5.0	U	5.0	0.22	1	NA	11/2/11 13:07		267849	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Methyl Acetate	10	U	10	0.23	1	NA	11/2/11 13:07		267849	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003E-052.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-046	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Methylcyclohexane	10	U	10	0.25	1	NA	11/2/11 13:07		267849	
Styrene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Toluene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Trichloroethene (TCE)	**2.9**	I	5.0	0.23	1	NA	11/2/11 13:07		267849	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
Vinyl Chloride	**110**		5.0	0.23	1	NA	11/2/11 13:07		267849	
cis-1,2-Dichloroethene	**20**		5.0	0.20	1	NA	11/2/11 13:07		267849	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
n-Butyl Acetate	**0.40**	I	5.0	0.21	1	NA	11/2/11 13:07		267849	
o-Xylene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	
trans-1,2-Dichloroethene	**0.41**	I	5.0	0.20	1	NA	11/2/11 13:07		267849	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/2/11 13:07		267849	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	11/2/11 13:07	
Dibromofluoromethane	103	89-119	11/2/11 13:07	
Toluene-d8	105	87-121	11/2/11 13:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003E-052.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-046	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/8/11 15:59		268565	
Ethene	**4.1**		1.0	1	NA	11/8/11 15:59		268565	
Methane	**2000**		100	50	NA	11/9/11 10:09		268842	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
		Date Analyzed:	11/14/11 18:40
Sample Name:	LC34-BW0003E-052.5-20111027	**Units:**	mg/L
Lab Code:	R1106024-046	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269468
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111411\X0006783.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**57**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**29**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**2.7**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003F-059.5-20111027		
Lab Code:	R1106024-047	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**3.1**		mg/L	1.0	10	NA	11/4/11 21:08	
Carbon, Total Organic (TOC), Average	9060A	**30.1**		mg/L	4.0	4	NA	11/4/11 21:37	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	11/11/11 12:02	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003F-059.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-047	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/31/11 19:19		267468	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/31/11 19:19		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.92**	I	5.0	0.31	1	NA	10/31/11 19:19		267468	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
1,1-Dichloroethene (1,1-DCE)	**0.38**	I	5.0	0.29	1	NA	10/31/11 19:19		267468	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/31/11 19:19		267468	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/31/11 19:19		267468	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/31/11 19:19		267468	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
n-Butanol	250	U	250	11	1	NA	10/31/11 19:19		267468	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/31/11 19:19		267468	
2-Hexanone	10	U	10	0.35	1	NA	10/31/11 19:19		267468	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/31/11 19:19		267468	
Acetone	20	U	20	0.98	1	NA	10/31/11 19:19		267468	
Benzene	5.0	U	5.0	0.21	1	NA	10/31/11 19:19		267468	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Bromoform	5.0	U	5.0	0.27	1	NA	10/31/11 19:19		267468	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/31/11 19:19		267468	
Carbon Disulfide	**1.2**	I	10	0.20	1	NA	10/31/11 19:19		267468	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/31/11 19:19		267468	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/31/11 19:19		267468	
Chloroform	5.0	U	5.0	0.22	1	NA	10/31/11 19:19		267468	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/31/11 19:19		267468	
Cyclohexane	10	U	10	0.24	1	NA	10/31/11 19:19		267468	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/31/11 19:19		267468	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/31/11 19:19		267468	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Methyl Acetate	10	U	10	0.23	1	NA	10/31/11 19:19		267468	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003F-059.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-047	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Methylcyclohexane	10	U	10	0.25	1	NA	10/31/11 19:19		267468	
Styrene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Toluene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Trichloroethene (TCE)	**0.50**	I	5.0	0.23	1	NA	10/31/11 19:19		267468	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
Vinyl Chloride	**190**		5.0	0.23	1	NA	10/31/11 19:19		267468	
cis-1,2-Dichloroethene	**210**		10	0.40	2	NA	11/1/11 18:24		267722	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/31/11 19:19		267468	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	
trans-1,2-Dichloroethene	**1.1**	I	5.0	0.20	1	NA	10/31/11 19:19		267468	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 19:19		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	10/31/11 19:19	
Dibromofluoromethane	104	89-119	10/31/11 19:19	
Toluene-d8	103	87-121	10/31/11 19:19	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-BW0003F-059.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-047	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**1.5**		1.0	1	NA	11/8/11 16:11		268565	
Ethene	**5.1**		1.0	1	NA	11/8/11 16:11		268565	
Methane	**170**		4.0	2	NA	11/8/11 16:20		268565	

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Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
		Date Analyzed:	11/14/11 20:33
Sample Name:	LC34-BW0003F-059.5-20111027	**Units:**	mg/L
Lab Code:	R1106024-047	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269468
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111411\X0006785.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**65**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**4.6**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-TB-20111027	**Units:**	µg/L
Lab Code:	R1106024-048	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/31/11 14:20		267468	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/31/11 14:20		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/31/11 14:20		267468	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/31/11 14:20		267468	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/31/11 14:20		267468	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/31/11 14:20		267468	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/31/11 14:20		267468	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
n-Butanol	250	U	250	11	1	NA	10/31/11 14:20		267468	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/31/11 14:20		267468	
2-Hexanone	10	U	10	0.35	1	NA	10/31/11 14:20		267468	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/31/11 14:20		267468	
Acetone	20	U	20	0.98	1	NA	10/31/11 14:20		267468	
Benzene	5.0	U	5.0	0.21	1	NA	10/31/11 14:20		267468	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Bromoform	5.0	U	5.0	0.27	1	NA	10/31/11 14:20		267468	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/31/11 14:20		267468	
Carbon Disulfide	10	U	10	0.20	1	NA	10/31/11 14:20		267468	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/31/11 14:20		267468	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/31/11 14:20		267468	
Chloroform	5.0	U	5.0	0.22	1	NA	10/31/11 14:20		267468	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/31/11 14:20		267468	
Cyclohexane	10	U	10	0.24	1	NA	10/31/11 14:20		267468	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/31/11 14:20		267468	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/31/11 14:20		267468	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Methyl Acetate	10	U	10	0.23	1	NA	10/31/11 14:20		267468	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
Sample Name:	LC34-TB-20111027	**Units:**	µg/L
Lab Code:	R1106024-048	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Methylcyclohexane	10	U	10	0.25	1	NA	10/31/11 14:20		267468	
Styrene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Toluene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/31/11 14:20		267468	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/31/11 14:20		267468	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/31/11 14:20		267468	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 14:20		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	10/31/11 14:20	
Dibromofluoromethane	102	89-119	10/31/11 14:20	
Toluene-d8	103	87-121	10/31/11 14:20	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	10/26/11 15:45	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	10/29/11 06:22	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	10/26/11 15:45	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	10/27/11 10:33	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/26/11 15:45	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/26/11 15:45	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	10/26/11 15:45	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	11/8/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	10/26/11 20:43	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	10/31/11 14:17	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	10/27/11 20:24	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	10/27/11 14:06	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/26/11 20:43	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/27/11 20:24	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	10/26/11 20:43	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	10/28/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	10/27/11 20:24	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	11/2/11 16:38	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	10/28/11 09:44	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	11/11/11 10:50	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/27/11 20:24	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/28/11 09:44	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	10/27/11 20:24	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	11/1/11 10:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB4	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	11/4/11 16:55	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	11/3/11 17:27	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	10/29/11 13:33	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/28/11 09:44	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/29/11 13:33	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	10/28/11 21:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB5	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	11/4/11 22:32	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	11/4/11 18:18	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	10/28/11 21:00	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	10/31/11 22:15	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB6	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	11/8/11 12:08	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB7	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	11/8/11 18:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 09:17	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/4/11 09:17	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 09:17	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 09:23	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/4/11 09:23	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/4/11 09:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB3	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 19:52	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/11/11 19:52	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 19:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106024-MB4	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 20:01	
Iron, Dissolved	6010C	100	U	µg/L	100	1	10/31/11	11/11/11 20:01	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	10/31/11	11/11/11 20:01	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1110942-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/28/11 15:17		267265	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/28/11 15:17		267265	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/28/11 15:17		267265	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/28/11 15:17		267265	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/28/11 15:17		267265	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/28/11 15:17		267265	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/28/11 15:17		267265	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
n-Butanol	250	U	250	11	1	NA	10/28/11 15:17		267265	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/28/11 15:17		267265	
2-Hexanone	10	U	10	0.35	1	NA	10/28/11 15:17		267265	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/28/11 15:17		267265	
Acetone	20	U	20	0.98	1	NA	10/28/11 15:17		267265	
Benzene	5.0	U	5.0	0.21	1	NA	10/28/11 15:17		267265	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Bromoform	5.0	U	5.0	0.27	1	NA	10/28/11 15:17		267265	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/28/11 15:17		267265	
Carbon Disulfide	10	U	10	0.20	1	NA	10/28/11 15:17		267265	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/28/11 15:17		267265	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/28/11 15:17		267265	
Chloroform	5.0	U	5.0	0.22	1	NA	10/28/11 15:17		267265	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/28/11 15:17		267265	
Cyclohexane	10	U	10	0.24	1	NA	10/28/11 15:17		267265	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/28/11 15:17		267265	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/28/11 15:17		267265	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Methyl Acetate	10	U	10	0.23	1	NA	10/28/11 15:17		267265	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1110942-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Methylcyclohexane	10	U	10	0.25	1	NA	10/28/11 15:17		267265	
Styrene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Toluene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/28/11 15:17		267265	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/28/11 15:17		267265	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/28/11 15:17		267265	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/28/11 15:17		267265	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	10/28/11 15:17	
Dibromofluoromethane	101	89-119	10/28/11 15:17	
Toluene-d8	104	87-121	10/28/11 15:17	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111029-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/29/11 02:53		267270	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/29/11 02:53		267270	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/29/11 02:53		267270	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/29/11 02:53		267270	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/29/11 02:53		267270	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/29/11 02:53		267270	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/29/11 02:53		267270	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
n-Butanol	**25**	I	250	11	1	NA	10/29/11 02:53		267270	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/29/11 02:53		267270	
2-Hexanone	10	U	10	0.35	1	NA	10/29/11 02:53		267270	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/29/11 02:53		267270	
Acetone	20	U	20	0.98	1	NA	10/29/11 02:53		267270	
Benzene	5.0	U	5.0	0.21	1	NA	10/29/11 02:53		267270	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Bromoform	5.0	U	5.0	0.27	1	NA	10/29/11 02:53		267270	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/29/11 02:53		267270	
Carbon Disulfide	10	U	10	0.20	1	NA	10/29/11 02:53		267270	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/29/11 02:53		267270	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/29/11 02:53		267270	
Chloroform	5.0	U	5.0	0.22	1	NA	10/29/11 02:53		267270	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/29/11 02:53		267270	
Cyclohexane	10	U	10	0.24	1	NA	10/29/11 02:53		267270	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/29/11 02:53		267270	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/29/11 02:53		267270	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Methyl Acetate	10	U	10	0.23	1	NA	10/29/11 02:53		267270	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111029-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Methylcyclohexane	10	U	10	0.25	1	NA	10/29/11 02:53		267270	
Styrene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Toluene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/29/11 02:53		267270	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/29/11 02:53		267270	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/29/11 02:53		267270	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/29/11 02:53		267270	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	10/29/11 02:53	
Dibromofluoromethane	102	89-119	10/29/11 02:53	
Toluene-d8	104	87-121	10/29/11 02:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111182-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/30/11 12:37		267361	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/30/11 12:37		267361	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/30/11 12:37		267361	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/30/11 12:37		267361	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/30/11 12:37		267361	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/30/11 12:37		267361	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/30/11 12:37		267361	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
n-Butanol	250	U	250	11	1	NA	10/30/11 12:37		267361	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/30/11 12:37		267361	
2-Hexanone	10	U	10	0.35	1	NA	10/30/11 12:37		267361	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/30/11 12:37		267361	
Acetone	20	U	20	0.98	1	NA	10/30/11 12:37		267361	
Benzene	5.0	U	5.0	0.21	1	NA	10/30/11 12:37		267361	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Bromoform	5.0	U	5.0	0.27	1	NA	10/30/11 12:37		267361	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/30/11 12:37		267361	
Carbon Disulfide	10	U	10	0.20	1	NA	10/30/11 12:37		267361	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/30/11 12:37		267361	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/30/11 12:37		267361	
Chloroform	5.0	U	5.0	0.22	1	NA	10/30/11 12:37		267361	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/30/11 12:37		267361	
Cyclohexane	10	U	10	0.24	1	NA	10/30/11 12:37		267361	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/30/11 12:37		267361	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/30/11 12:37		267361	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Methyl Acetate	10	U	10	0.23	1	NA	10/30/11 12:37		267361	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111182-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Methylcyclohexane	10	U	10	0.25	1	NA	10/30/11 12:37		267361	
Styrene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Toluene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/30/11 12:37		267361	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/30/11 12:37		267361	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/30/11 12:37		267361	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/30/11 12:37		267361	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	10/30/11 12:37	
Dibromofluoromethane	100	89-119	10/30/11 12:37	
Toluene-d8	104	87-121	10/30/11 12:37	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111185-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	10/31/11 13:50		267468	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	10/31/11 13:50		267468	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	10/31/11 13:50		267468	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	10/31/11 13:50		267468	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	10/31/11 13:50		267468	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	10/31/11 13:50		267468	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	10/31/11 13:50		267468	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
n-Butanol	250	U	250	11	1	NA	10/31/11 13:50		267468	
2-Butanone (MEK)	10	U	10	0.51	1	NA	10/31/11 13:50		267468	
2-Hexanone	10	U	10	0.35	1	NA	10/31/11 13:50		267468	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	10/31/11 13:50		267468	
Acetone	20	U	20	0.98	1	NA	10/31/11 13:50		267468	
Benzene	5.0	U	5.0	0.21	1	NA	10/31/11 13:50		267468	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Bromoform	5.0	U	5.0	0.27	1	NA	10/31/11 13:50		267468	
Bromomethane	5.0	U	5.0	0.31	1	NA	10/31/11 13:50		267468	
Carbon Disulfide	10	U	10	0.20	1	NA	10/31/11 13:50		267468	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	10/31/11 13:50		267468	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Chloroethane	5.0	U	5.0	0.31	1	NA	10/31/11 13:50		267468	
Chloroform	5.0	U	5.0	0.22	1	NA	10/31/11 13:50		267468	
Chloromethane	5.0	U	5.0	0.24	1	NA	10/31/11 13:50		267468	
Cyclohexane	10	U	10	0.24	1	NA	10/31/11 13:50		267468	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	10/31/11 13:50		267468	
Dichloromethane	5.0	U	5.0	0.22	1	NA	10/31/11 13:50		267468	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Methyl Acetate	10	U	10	0.23	1	NA	10/31/11 13:50		267468	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111185-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Methylcyclohexane	10	U	10	0.25	1	NA	10/31/11 13:50		267468	
Styrene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Toluene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	10/31/11 13:50		267468	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	10/31/11 13:50		267468	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	10/31/11 13:50		267468	
o-Xylene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	10/31/11 13:50		267468	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	10/31/11 13:50	
Dibromofluoromethane	102	89-119	10/31/11 13:50	
Toluene-d8	102	87-121	10/31/11 13:50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111072-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	11/1/11 16:56		267722	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	11/1/11 16:56		267722	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	11/1/11 16:56		267722	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	11/1/11 16:56		267722	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	11/1/11 16:56		267722	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	11/1/11 16:56		267722	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	11/1/11 16:56		267722	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
n-Butanol	250	U	250	11	1	NA	11/1/11 16:56		267722	
2-Butanone (MEK)	10	U	10	0.51	1	NA	11/1/11 16:56		267722	
2-Hexanone	10	U	10	0.35	1	NA	11/1/11 16:56		267722	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	11/1/11 16:56		267722	
Acetone	20	U	20	0.98	1	NA	11/1/11 16:56		267722	
Benzene	5.0	U	5.0	0.21	1	NA	11/1/11 16:56		267722	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Bromoform	5.0	U	5.0	0.27	1	NA	11/1/11 16:56		267722	
Bromomethane	5.0	U	5.0	0.31	1	NA	11/1/11 16:56		267722	
Carbon Disulfide	10	U	10	0.20	1	NA	11/1/11 16:56		267722	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	11/1/11 16:56		267722	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Chloroethane	5.0	U	5.0	0.31	1	NA	11/1/11 16:56		267722	
Chloroform	5.0	U	5.0	0.22	1	NA	11/1/11 16:56		267722	
Chloromethane	5.0	U	5.0	0.24	1	NA	11/1/11 16:56		267722	
Cyclohexane	10	U	10	0.24	1	NA	11/1/11 16:56		267722	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	11/1/11 16:56		267722	
Dichloromethane	5.0	U	5.0	0.22	1	NA	11/1/11 16:56		267722	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Methyl Acetate	10	U	10	0.23	1	NA	11/1/11 16:56		267722	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111072-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Methylcyclohexane	10	U	10	0.25	1	NA	11/1/11 16:56		267722	
Styrene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Toluene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	11/1/11 16:56		267722	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	11/1/11 16:56		267722	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	11/1/11 16:56		267722	
o-Xylene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/1/11 16:56		267722	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	11/1/11 16:56	
Dibromofluoromethane	102	89-119	11/1/11 16:56	
Toluene-d8	103	87-121	11/1/11 16:56	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111238-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	11/2/11 11:57		267849	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	11/2/11 11:57		267849	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	11/2/11 11:57		267849	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	11/2/11 11:57		267849	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	11/2/11 11:57		267849	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	11/2/11 11:57		267849	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	11/2/11 11:57		267849	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
n-Butanol	250	U	250	11	1	NA	11/2/11 11:57		267849	
2-Butanone (MEK)	10	U	10	0.51	1	NA	11/2/11 11:57		267849	
2-Hexanone	10	U	10	0.35	1	NA	11/2/11 11:57		267849	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	11/2/11 11:57		267849	
Acetone	20	U	20	0.98	1	NA	11/2/11 11:57		267849	
Benzene	5.0	U	5.0	0.21	1	NA	11/2/11 11:57		267849	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Bromoform	5.0	U	5.0	0.27	1	NA	11/2/11 11:57		267849	
Bromomethane	5.0	U	5.0	0.31	1	NA	11/2/11 11:57		267849	
Carbon Disulfide	10	U	10	0.20	1	NA	11/2/11 11:57		267849	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	11/2/11 11:57		267849	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Chloroethane	5.0	U	5.0	0.31	1	NA	11/2/11 11:57		267849	
Chloroform	5.0	U	5.0	0.22	1	NA	11/2/11 11:57		267849	
Chloromethane	5.0	U	5.0	0.24	1	NA	11/2/11 11:57		267849	
Cyclohexane	10	U	10	0.24	1	NA	11/2/11 11:57		267849	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	11/2/11 11:57		267849	
Dichloromethane	5.0	U	5.0	0.22	1	NA	11/2/11 11:57		267849	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Methyl Acetate	10	U	10	0.23	1	NA	11/2/11 11:57		267849	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111238-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Methylcyclohexane	10	U	10	0.25	1	NA	11/2/11 11:57		267849	
Styrene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Toluene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	11/2/11 11:57		267849	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	11/2/11 11:57		267849	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	11/2/11 11:57		267849	
o-Xylene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/2/11 11:57		267849	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	11/2/11 11:57	
Dibromofluoromethane	102	89-119	11/2/11 11:57	
Toluene-d8	105	87-121	11/2/11 11:57	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111161-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/3/11 13:53		268117	
Ethene	1.0	U	1.0	1	NA	11/3/11 13:53		268117	
Methane	2.0	U	2.0	1	NA	11/3/11 13:53		268117	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111222-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/4/11 09:46		268312	
Ethene	1.0	U	1.0	1	NA	11/4/11 09:46		268312	
Methane	2.0	U	2.0	1	NA	11/4/11 09:46		268312	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111302-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/7/11 09:14		268430	
Ethene	1.0	U	1.0	1	NA	11/7/11 09:14		268430	
Methane	2.0	U	2.0	1	NA	11/7/11 09:14		268430	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111303-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/7/11 14:06		268433	
Ethene	1.0	U	1.0	1	NA	11/7/11 14:06		268433	
Methane	2.0	U	2.0	1	NA	11/7/11 14:06		268433	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111335-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/8/11 12:42		268565	
Ethene	1.0	U	1.0	1	NA	11/8/11 12:42		268565	
Methane	2.0	U	2.0	1	NA	11/8/11 12:42		268565	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111426-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	11/9/11 08:24		268842	
Ethene	1.0	U	1.0	1	NA	11/9/11 08:24		268842	
Methane	2.0	U	2.0	1	NA	11/9/11 08:24		268842	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/7/11 12:25
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1111307-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268467
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110711\X0006651.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/9/11 14:05
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1111427-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	268843
Data File Name:	J:\ACQUDATA\HPLC05\DATA\110911\X0006698.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/11/11 14:57
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1111632-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269418
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111111\X0006746.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/14/11 13:57
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1111655-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269468
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111411\X0006778.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/25/11
Date Received: 10/26/11
Date Analyzed: 10/26/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0001D-045.5-20111025
Lab Code: R1106024-009

Units: mg/L
Basis: NA

Analytical Method: 300.0

Analyte Name	Sample Result	LC34-BW0001D-045.5-201110 25MS Matrix Spike R1106024-009MS2 Result	Spike Amount	% Rec		LC34-BW0001D-045.5-201110 25DMS Duplicate Matrix Spike R1106024-009DMS2 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
Bromide	12.7	22.5	10.0	98		22.4	10.0	96		90 - 110	<1	20
Nitrate as Nitrogen	ND	9.8	10.0	98		9.7	10.0	97		90 - 110	<1	20
Sulfate	69.0	86.3	20.0	86	*	85.8	20.0	84	*	90 - 110	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	10/27/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-BW0001F-059.5-20111025	**Units:**	mg/L
Lab Code:	R1106024-013	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0001F-059.5-20111025DUP Duplicate Sample R1106024-013DUP1 Result	Average	RPD	RPD Limit
Iodide	300.0	2.0	2.0 U	2.0 U	NC	NC	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/25/11
Date Received: 10/26/11
Date Analyzed: 10/27/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0001F-059.5-20111025
Lab Code: R1106024-013

Units: mg/L
Basis: NA

Analytical Method: 300.0

LC34-BW0001F-059.5-201110
25MS
Matrix Spike
R1106024-013MS3

Analyte Name	Sample Result	Spike Result	Spike Amount	% Rec	% Rec Limits
Iodide	ND	9.1	10.0	91	90 - 110

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/ 8/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-BW0002C-038.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-027	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-BW0002C-038.5-20111026DUP Duplicate Sample R1106024-027DUP2 Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	366	360	363	2	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/ 8/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	LC34-BW0002C-038.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-027	**Basis:**	NA

Analytical Method: SM 2320 B

LC34-BW0002C-038.5-201110
26MS
Matrix Spike
R1106024-027MS4

Analyte Name	Sample Result	Spike Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO3, Total	366	500	143	94	70 - 110

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	10/27/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-IW0002I-027.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-038	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-IW0002I-027.5 -20111026DUP Duplicate Sample R1106024-038DUP4 Result	Average	RPD	RPD Limit
Bromide	300.0	1.0	2.7	2.6	2.65	3	20
Chloride	300.0	2.0	65.4	65.6	65.5	<1	20
Iodide	300.0	2.0	2.5	2.5	2.50	<1	20
Nitrate as Nitrogen	300.0	1.0	1.0 U	1.0 U	NC	NC	20
Sulfate	300.0	2.0	30.9	30.7	30.8	<1	20
Nitrite as Nitrogen	300.0	1.0	1.0 U	1.0 U	NC	NC	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/26/11
Date Received: 10/27/11
Date Analyzed: 10/27/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-IW0002I-027.5-20111026
Lab Code: R1106024-038

Units: mg/L
Basis: NA

Analytical Method: 300.0

LC34-IW0002I-027.5-2011102
6MS
Matrix Spike
R1106024-038MS6

Analyte Name	Sample Result	Spike Result	Spike Amount	% Rec		% Rec Limits
Bromide	2.7	13.2	10.0	105		90 - 110
Chloride	65.4	83.0	20.0	88	*	90 - 110
Iodide	2.5	11.3	10.0	88	*	90 - 110
Nitrate as Nitrogen	ND	10.2	10.0	102		90 - 110
Nitrite as Nitrogen	ND	9.9	10	99		90 - 110
Sulfate	30.9	49.6	20.0	94		90 - 110

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	10/29/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-IW0002D-037.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-040	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-IW0002D-037.5-20111026DUP Duplicate Sample R1106024-040DUP5 Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC), Average	9060A	100	590	590	591	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	10/29/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	LC34-IW0002D-037.5-20111026	**Units:**	mg/L
Lab Code:	R1106024-040	**Basis:**	NA

Analytical Method: 9060A

LC34-IW0002D-037.5-2011102
6MS
Matrix Spike
R1106024-040MS7

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	590	1560	1000	97	62 - 135

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
		Date Analyzed:	11/11/11

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	LC34-BW0003B-031.5-20111027	**Units:**	mg/L
Lab Code:	R1106024-044	**Basis:**	NA

Analytical Method: 300.0

		LC34-BW0003B-031.5-201110 27MS Matrix Spike R1106024-044MS8			LC34-BW0003B-031.5-201110 27DMS Duplicate Matrix Spike R1106024-044DMS8					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Iodide	ND	9.2	10.0	92	9.5	10.0	95	90 - 110	3	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/ 4/11

Replicate Sample Summary
Inorganic Parameters

Sample Name:	LC34-IW0002D1-052.5-20111026 Dissolved	**Units:**	µg/L
Lab Code:	R1106024-043	**Basis:**	NA

Analyte Name	Method	MRL	Sample Result	LC34-IW0002D1-052.5-20111026 DissolvedDUP Duplicate Sample R1106024-043DUP Result	Average	RPD	RPD Limit
Arsenic, Dissolved	6010C	10	10 U	10 U	NC	NC	20
Iron, Dissolved	6010C	100	100 U	100 U	NC	NC	20
Manganese, Dissolved	6010C	10	13	13	13.3	1	20

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/26/11
Sample Matrix:	Water	**Date Received:**	10/27/11
		Date Analyzed:	11/ 4/11

Matrix Spike Summary
Inorganic Parameters

Sample Name:	LC34-IW0002D1-052.5-20111026 Dissolve	**Units:**	µg/L
Lab Code:	R1106024-043	**Basis:**	NA

Analytical Method: 6010C
Prep Method: EPA 3010A

LC34-IW0002D1-052.5-201110
26 DissolvedMS
Matrix Spike
R1106024-043MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	ND	40	40	99	75 - 125
Iron, Dissolved	ND	1030	1000	103	75 - 125
Manganese, Dissolved	13	528	500	103	75 - 125

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/25/11
Date Received: 10/26/11
Date Analyzed: 10/31/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-BW0001B-031.5-20111025
Lab Code: R1106024-005

Units: µg/L
Basis: NA

Analytical Method: 8260C

Analyte Name	Sample Result	LC34-BW0001B-031.5-201110 25MS Matrix Spike RQ1111185-05 Result	Spike Amount	% Rec	LC34-BW0001B-031.5-201110 25DMS Duplicate Matrix Spike RQ1111185-06 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane (TCA)	ND	50000	50000	100	46200	50000	92	76 - 142	8	30
1,1,2,2-Tetrachloroethane	ND	46700	50000	93	45300	50000	91	71 - 120	3	30
1,1,2-Trichloroethane	ND	50500	50000	101	48700	50000	97	80 - 119	3	30
1,1,2-Trichloro-1,2,2-trifluoroethane	68000	120000	50000	105	103000	50000	72	65 - 154	15	30
1,1-Dichloroethane (1,1-DCA)	ND	51000	50000	102	47600	50000	95	79 - 134	7	30
1,1-Dichloroethene (1,1-DCE)	ND	47000	50000	94	43300	50000	87	71 - 143	8	30
1,2,4-Trichlorobenzene	ND	47400	50000	95	46400	50000	93	75 - 118	2	30
1,2-Dibromo-3-chloropropane (DBC	ND	57400	50000	115	57900	50000	116	60 - 125	<1	30
1,2-Dibromoethane	ND	53000	50000	106	51500	50000	103	78 - 119	3	30
1,2-Dichlorobenzene	ND	50000	50000	100	48300	50000	97	82 - 117	4	30
1,2-Dichloroethane	ND	52800	50000	106	51300	50000	103	73 - 133	3	30
1,2-Dichloropropane	ND	50700	50000	101	49700	50000	99	84 - 124	2	30
1,3-Dichlorobenzene	ND	51100	50000	102	49100	50000	98	82 - 117	4	30
1,4-Dichlorobenzene	ND	50000	50000	100	48300	50000	97	81 - 116	3	30
n-Butanol	1400000	3340000	2510000	77	3880000	2510000	98	50 - 150	15	30
2-Butanone (MEK)	ND	48800	50000	98	46800	50000	94	54 - 130	4	30
2-Hexanone	ND	55300	50000	111	57300	50000	115	55 - 125	4	30
4-Methyl-2-pentanone	ND	53900	50000	108	53900	50000	108	59 - 131	<1	30
Acetone	ND	55200	50000	110	44900	50000	90	37 - 152	21	30
Benzene	ND	48900	50000	98	46400	50000	93	81 - 124	5	30
Bromodichloromethane	ND	55100	50000	110	53400	50000	107	81 - 126	3	30
Bromoform	ND	59500	50000	119	58600	50000	117	61 - 126	2	30
Bromomethane	ND	23100	50000	46	28600	50000	57	45 - 154	21	30
Carbon Disulfide	ND	53700	50000	107	50400	50000	101	32 - 149	6	30
Carbon Tetrachloride	ND	55800	50000	112	52300	50000	105	71 - 146	7	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/25/11
Date Received: 10/26/11
Date Analyzed: 10/31/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-BW0001B-031.5-20111025
Lab Code: R1106024-005

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-BW0001B-031.5-201110 25MS Matrix Spike RQ1111185-05			LC34-BW0001B-031.5-201110 25DMS Duplicate Matrix Spike RQ1111185-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chlorobenzene	ND	51200	50000	102	48700	50000	97	80 - 125	5	30
Chloroethane	ND	47500	50000	95	43600	50000	87	68 - 148	9	30
Chloroform	ND	51100	50000	102	47700	50000	95	81 - 131	7	30
Chloromethane	ND	40100	50000	80	36900	50000	74	61 - 151	8	30
Cyclohexane	ND	50000	50000	100	49600	50000	99	59 - 144	<1	30
Dibromochloromethane	ND	57300	50000	115	55600	50000	111	74 - 130	3	30
Dichlorodifluoromethane (CFC 12)	ND	44100	50000	88	40300	50000	81	44 - 175	9	30
Dichloromethane	ND	48100	50000	96	45600	50000	91	78 - 125	5	30
Ethylbenzene	ND	52800	50000	106	49400	50000	99	84 - 127	7	30
Isopropylbenzene (Cumene)	ND	58000	50000	116	54300	50000	109	82 - 140	7	30
Methyl Acetate	ND	49100	50000	98	49400	50000	99	38 - 156	<1	30
Methyl tert-Butyl Ether	ND	48600	50000	97	47200	50000	94	75 - 126	3	30
Methylcyclohexane	ND	48400	50000	97	48600	50000	97	63 - 141	<1	30
Styrene	ND	55700	50000	111	52500	50000	105	43 - 146	6	30
Tetrachloroethene (PCE)	ND	51500	50000	103	48600	50000	97	66 - 142	6	30
Toluene	ND	50500	50000	101	47500	50000	95	81 - 125	6	30
Trichloroethene (TCE)	3200	56500	50000	107	53700	50000	101	71 - 133	5	30
Trichlorofluoromethane (CFC 11)	ND	49200	50000	98	44900	50000	90	71 - 159	9	30
Vinyl Chloride	1100	48000	50000	94	44500	50000	87	72 - 154	8	30
cis-1,2-Dichloroethene	12000	60400	50000	98	56000	50000	89	72 - 137	8	30
cis-1,3-Dichloropropene	ND	50600	50000	101	48900	50000	98	71 - 120	4	30
m,p-Xylenes	ND	106000	100000	106	98800	100000	99	80 - 129	7	30
n-Butyl Acetate	56000	107000	50000	103	104000	50000	95	18 - 159	4	30
o-Xylene	ND	52600	50000	105	49600	50000	99	80 - 126	6	30
trans-1,2-Dichloroethene	260	48800	50000	97	45100	50000	90	77 - 130	8	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	10/31/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name:	LC34-BW0001B-031.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-005	**Basis:**	NA

Analytical Method: 8260C

		LC34-BW0001B-031.5-201110 25MS Matrix Spike RQ1111185-05			LC34-BW0001B-031.5-201110 25DMS Duplicate Matrix Spike RQ1111185-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
trans-1,3-Dichloropropene	ND	51000	50000	102	50400	50000	101	67 - 122	1	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/26/11
Date Received: 10/27/11
Date Analyzed: 10/29/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-RW0008-052.0-20111026
Lab Code: R1106024-036

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-RW0008-052.0-20111026 MS Matrix Spike RQ1111029-05				LC34-RW0008-052.0-20111026 DMS Duplicate Matrix Spike RQ1111029-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	ND	472	500	94		532	500	106		76 - 142	12	30
1,1,2,2-Tetrachloroethane	ND	467	500	93		510	500	102		71 - 120	9	30
1,1,2-Trichloroethane	ND	501	500	100		535	500	107		80 - 119	6	30
1,1,2-Trichloro-1,2,2-trifluoroethane	1200	1490	500	54	*	1540	500	63	*	65 - 154	3	30
1,1-Dichloroethane (1,1-DCA)	ND	490	500	98		543	500	109		79 - 134	10	30
1,1-Dichloroethene (1,1-DCE)	ND	456	500	91		515	500	103		71 - 143	12	30
1,2,4-Trichlorobenzene	ND	431	500	86		469	500	94		75 - 118	8	30
1,2-Dibromo-3-chloropropane (DBC	ND	543	500	109		576	500	115		60 - 125	6	30
1,2-Dibromoethane	ND	502	500	100		528	500	106		78 - 119	5	30
1,2-Dichlorobenzene	ND	455	500	91		499	500	100		82 - 117	9	30
1,2-Dichloroethane	ND	512	500	102		547	500	109		73 - 133	7	30
1,2-Dichloropropane	ND	496	500	99		541	500	108		84 - 124	9	30
1,3-Dichlorobenzene	ND	455	500	91		509	500	102		82 - 117	11	30
1,4-Dichlorobenzene	ND	449	500	90		494	500	99		81 - 116	9	30
n-Butanol	ND	28500	25100	114		31500	25100	125		50 - 150	10	30
2-Butanone (MEK)	ND	495	500	99		499	500	100		54 - 130	<1	30
2-Hexanone	ND	523	500	105		536	500	107		55 - 125	3	30
4-Methyl-2-pentanone	ND	554	500	111		562	500	112		59 - 131	1	30
Acetone	ND	508	500	102		666	500	133		37 - 152	27	30
Benzene	ND	462	500	92		512	500	102		81 - 124	10	30
Bromodichloromethane	ND	524	500	105		574	500	115		81 - 126	9	30
Bromoform	ND	551	500	110		594	500	119		61 - 126	7	30
Bromomethane	ND	290	500	58		345	500	69		45 - 154	17	30
Carbon Disulfide	ND	541	500	108		571	500	114		32 - 149	5	30
Carbon Tetrachloride	ND	510	500	102		578	500	116		71 - 146	12	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/26/11
Date Received: 10/27/11
Date Analyzed: 10/29/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-RW0008-052.0-20111026
Lab Code: R1106024-036

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-RW0008-052.0-20111026 MS Matrix Spike RQ1111029-05				LC34-RW0008-052.0-20111026 DMS Duplicate Matrix Spike RQ1111029-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Chlorobenzene	ND	464	500	93		508	500	102		80 - 125	9	30
Chloroethane	ND	472	500	94		520	500	104		68 - 148	10	30
Chloroform	ND	491	500	98		541	500	108		81 - 131	10	30
Chloromethane	ND	419	500	84		449	500	90		61 - 151	7	30
Cyclohexane	ND	497	500	99		494	500	99		59 - 144	<1	30
Dibromochloromethane	ND	526	500	105		576	500	115		74 - 130	9	30
Dichlorodifluoromethane (CFC 12)	ND	433	500	87		481	500	96		44 - 175	10	30
Dichloromethane	ND	469	500	94		511	500	102		78 - 125	9	30
Ethylbenzene	ND	474	500	95		525	500	105		84 - 127	10	30
Isopropylbenzene (Cumene)	ND	510	500	102		570	500	114		82 - 140	11	30
Methyl Acetate	ND	721	500	144		749	500	150		38 - 156	4	30
Methyl tert-Butyl Ether	ND	493	500	99		532	500	106		75 - 126	8	30
Methylcyclohexane	ND	478	500	96		466	500	93		63 - 141	3	30
Styrene	ND	487	500	97		543	500	109		43 - 146	11	30
Tetrachloroethene (PCE)	ND	453	500	91		501	500	100		66 - 142	10	30
Toluene	ND	476	500	95		525	500	105		81 - 125	10	30
Trichloroethene (TCE)	1900	2150	500	55	*	2210	500	68	*	71 - 133	3	30
Trichlorofluoromethane (CFC 11)	ND	492	500	98		543	500	109		71 - 159	10	30
Vinyl Chloride	630	1010	500	77		1080	500	91		72 - 154	7	30
cis-1,2-Dichloroethene	1700	2020	500	57	*	2120	500	75		72 - 137	4	30
cis-1,3-Dichloropropene	ND	402	500	80		433	500	87		71 - 120	7	30
m,p-Xylenes	ND	940	1000	94		1040	1000	104		80 - 129	10	30
n-Butyl Acetate	ND	202	500	40		216	500	43		18 - 159	7	30
o-Xylene	ND	472	500	94		523	500	105		80 - 126	10	30
trans-1,2-Dichloroethene	12	482	500	94		528	500	103		77 - 130	9	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/26/11
Date Received: 10/27/11
Date Analyzed: 10/29/11

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-RW0008-052.0-20111026
Lab Code: R1106024-036

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-RW0008-052.0-20111026 MS Matrix Spike RQ1111029-05			LC34-RW0008-052.0-20111026 DMS Duplicate Matrix Spike RQ1111029-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
trans-1,3-Dichloropropene	ND	449	500	90	487	500	97	67 - 122	8	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/ 4/11

Matrix Spike Summary
Dissolved Gases by GC/FID

Sample Name:	LC34-BW0001C-038.5-20111025	**Units:**	µg/L
Lab Code:	R1106024-007	**Basis:**	NA

Analytical Method: RSK 175

		LC34-BW0001C-038.5-201110 25MS Matrix Spike RQ1111222-03			LC34-BW0001C-038.5-201110 25DMS Duplicate Matrix Spike RQ1111222-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	57	106	52.1	95	111	52.1	104	57 - 133	4	30
Ethene	10	56.2	48.6	95	60.1	48.6	103	58 - 135	7	30
Methane	64	114	52.4	97	116	52.4	99	47 - 146	1	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
		Date Analyzed:	11/ 9/11

Matrix Spike Summary
Dissolved Gases by GC/FID

Sample Name:	LC34-BW0003E-052.5-20111027	**Units:**	µg/L
Lab Code:	R1106024-046	**Basis:**	NA

Analytical Method: RSK 175

		LC34-BW0003E-052.5-201110 27MS Matrix Spike RQ1111426-03			LC34-BW0003E-052.5-201110 27DMS Duplicate Matrix Spike RQ1111426-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	ND	3090	2610	118	3250	2610	125	57 - 133	5	30
Ethene	4.1	2660	2430	109	2820	2430	116	58 - 135	6	30
Methane	2000	5270	2620	124	5330	2620	126	47 - 146	1	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/25/11
Sample Matrix:	Water	**Date Received:**	10/26/11
		Date Analyzed:	11/ 8/11

Matrix Spike Summary

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	LC34-IW0076-075.0-20111025	**Units:**	mg/L
Lab Code:	R1106024-001	**Basis:**	NA

Analytical Method: Organic Acids

		LC34-IW0076-075.0-20111025 MS Matrix Spike RQ1111307-04			LC34-IW0076-075.0-20111025 DMS Duplicate Matrix Spike RQ1111307-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND	1.05	1.00	105	1.06	1.00	106	25 - 152	<1	30
Acetic Acid	12	20.2	10.0	81	20.3	10.0	81	13 - 167	<1	30
Butanoic Acid (Butyric Acid)	13	21.3	10.0	86	23.9	10.0	113	49 - 145	12	30
Lactic Acid	ND	9.25	9.97	93	9.33	9.97	94	27 - 127	<1	30
Propionic Acid	ND	8.55	9.97	86	8.33	9.97	84	68 - 133	3	30

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Collected: 10/26/11
Date Received: 10/27/11
Date Analyzed: 11/12/11

Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: LC34-RW0007-038.5-20111026
Lab Code: R1106024-034

Units: mg/L
Basis: NA

Analytical Method: Organic Acids

		LC34-RW0007-038.5-20111026 MS Matrix Spike RQ1111632-04				LC34-RW0007-038.5-20111026 DMS Duplicate Matrix Spike RQ1111632-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND	5.40	5.00	108		5.30	5.00	106		25 - 152	2	30
Acetic Acid	270	319	50.0	91	#	319	50.0	91	#	13 - 167	<1	30
Butanoic Acid (Butyric Acid)	270	314	50.0	90	#	313	50.0	87	#	49 - 145	<1	30
Lactic Acid	ND	47.4	49.9	95		45.8	49.9	92		27 - 127	3	30
Propionic Acid	17	61.5	49.8	90		59.5	49.8	86		68 - 133	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Collected:**	10/27/11
Sample Matrix:	Water	**Date Received:**	10/28/11
		Date Analyzed:	11/15/11

Matrix Spike Summary

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	LC34-BW0003C-038.5-20111027	**Units:**	mg/L
Lab Code:	R1106024-045	**Basis:**	NA

Analytical Method: Organic Acids

		LC34-BW0003C-038.5-201110 27MS Matrix Spike RQ1111655-04			LC34-BW0003C-038.5-201110 27DMS Duplicate Matrix Spike RQ1111655-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND	1.12	1.00	112	1.14	1.00	114	25 - 152	2	30
Acetic Acid	25	32.6	10.0	80	32.6	10.0	80	13 - 167	<1	30
Butanoic Acid (Butyric Acid)	ND	10.9	10.0	109	10.6	10.0	106	49 - 145	3	30
Lactic Acid	ND	9.12	9.97	91	9.28	9.97	93	27 - 127	2	30
Propionic Acid	ND	8.76	9.97	88	8.76	9.97	88	68 - 133	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1106024-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.74	5.6	103	5.64	5.6	101	56 - 138	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/26/11 - 11/ 8/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.981	1.00	98	90 - 110
Chloride	300.0	2.11	2.00	106	90 - 110
Iodide	300.0	0.940	1.00	94	90 - 110
Nitrate as Nitrogen	300.0	1.03	1.00	103	90 - 110
Sulfate	300.0	1.98	2.00	99	90 - 110
Sulfide, Total	SM 4500-S2- F	6.22	6.4	98	56 - 138
Alkalinity as CaCO3, Total	SM 2320 B	19.0	20.0	95	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.96	10.0	100	86 - 117
Nitrite as Nitrogen	300.0	1.02	1.0	103	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/26/11 - 11/ 8/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.970	1.00	97	90 - 110
Chloride	300.0	2.01	2.00	101	90 - 110
Iodide	300.0	0.927	1.00	93	90 - 110
Nitrate as Nitrogen	300.0	1.02	1.00	102	90 - 110
Sulfate	300.0	1.95	2.00	97	90 - 110
Sulfide, Total	SM 4500-S2- F	6.37	6.4	100	56 - 138
Alkalinity as CaCO3, Total	SM 2320 B	20.8	20.0	104	72 - 115
Carbon, Total Organic (TOC), Average	9060A	10.3	10.0	103	86 - 117
Nitrite as Nitrogen	300.0	1.00	1.0	100	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/27/11 - 11/11/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.01	1.00	101	90 - 110
Chloride	300.0	2.01	2.00	101	90 - 110
Iodide	300.0	0.895	1.00	90	90 - 110
Nitrate as Nitrogen	300.0	1.01	1.00	101	90 - 110
Sulfate	300.0	2.03	2.00	101	90 - 110
Carbon, Total Organic (TOC), Average	9060A	10.2	10.0	102	86 - 117
Nitrite as Nitrogen	300.0	1.00	1.0	100	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/28/11 - 11/ 4/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS5 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.08	1.00	108	90 - 110
Chloride	300.0	2.03	2.00	101	90 - 110
Nitrate as Nitrogen	300.0	0.988	1.00	99	90 - 110
Sulfate	300.0	1.95	2.00	98	90 - 110
Carbon, Total Organic (TOC), Average	9060A	10.1	10.0	101	86 - 117
Nitrite as Nitrogen	300.0	1.00	1.0	101	90 - 110

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106024
Project:	ESTCP PED LC34 TR0272 10/25-27/11	**Date Analyzed:**	10/28/11 - 11/ 4/11
Sample Matrix:	Water		

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1106024-LCS6			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Bromide	300.0	1.03	1.00	103	90 - 110
Nitrate as Nitrogen	300.0	1.01	1.00	101	90 - 110
Sulfate	300.0	2.01	2.00	100	90 - 110
Carbon, Total Organic (TOC), Average	9060A	10.2	10.0	102	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 8/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS7 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.04	1.00	104	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 8/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS8 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.06	1.00	106	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 4/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	38.2	40	95	80 - 120
Iron, Dissolved	6010C	1000	1000	100	80 - 120
Manganese, Dissolved	6010C	494	500	99	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/11/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106024-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	36.6	40	91	80 - 120
Iron, Dissolved	6010C	986	1000	99	80 - 120
Manganese, Dissolved	6010C	479	500	96	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267265

Analyte Name	Lab Control Sample RQ1110942-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.8	20.0	84	72 - 128
1,1,2,2-Tetrachloroethane	19.1	20.0	96	72 - 131
1,1,2-Trichloroethane	19.1	20.0	95	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.2	20.0	76	68 - 136
1,1-Dichloroethane (1,1-DCA)	18.0	20.0	90	76 - 124
1,1-Dichloroethene (1,1-DCE)	15.7	20.0	79	72 - 129
1,2,4-Trichlorobenzene	18.3	20.0	92	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.3	20.0	92	62 - 131
1,2-Dibromoethane	19.1	20.0	95	78 - 125
1,2-Dichlorobenzene	18.3	20.0	92	79 - 124
1,2-Dichloroethane	19.7	20.0	99	73 - 127
1,2-Dichloropropane	18.7	20.0	94	80 - 123
1,3-Dichlorobenzene	18.2	20.0	91	78 - 124
1,4-Dichlorobenzene	18.4	20.0	92	78 - 123
n-Butanol	963	1000	96	70 - 130
2-Butanone (MEK)	18.4	20.0	92	60 - 133
2-Hexanone	19.7	20.0	99	61 - 131
4-Methyl-2-pentanone	19.9	20.0	100	61 - 132
Acetone	16.9	20.0	85	54 - 139
Benzene	17.3	20.0	86	78 - 121
Bromodichloromethane	19.2	20.0	96	80 - 125
Bromoform	21.8	20.0	109	68 - 130
Bromomethane	13.5	20.0	67	57 - 144
Carbon Disulfide	16.6	20.0	83	52 - 140
Carbon Tetrachloride	17.5	20.0	87	68 - 133
Chlorobenzene	18.1	20.0	91	80 - 121
Chloroethane	17.1	20.0	85	71 - 130
Chloroform	18.1	20.0	90	78 - 125
Chloromethane	15.9	20.0	79	61 - 138
Cyclohexane	18.0	20.0	90	57 - 126
Dibromochloromethane	20.7	20.0	104	78 - 133
Dichlorodifluoromethane (CFC 12)	14.5	20.0	73	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/28/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267265

Analyte Name	Lab Control Sample RQ1110942-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	17.5	20.0	88	75 - 125
Ethylbenzene	17.8	20.0	89	78 - 123
Isopropylbenzene (Cumene)	19.2	20.0	96	73 - 133
Methyl Acetate	17.9	20.0	90	57 - 157
Methyl tert-Butyl Ether	18.4	20.0	92	75 - 126
Methylcyclohexane	18.4	20.0	92	61 - 125
Styrene	18.7	20.0	94	80 - 132
Tetrachloroethene (PCE)	17.2	20.0	86	72 - 131
Toluene	17.6	20.0	88	78 - 122
Trichloroethene (TCE)	17.6	20.0	88	74 - 127
Trichlorofluoromethane (CFC 11)	16.3	20.0	81	69 - 141
Vinyl Chloride	16.6	20.0	83	72 - 138
cis-1,2-Dichloroethene	18.3	20.0	92	78 - 122
cis-1,3-Dichloropropene	18.9	20.0	94	77 - 125
m,p-Xylenes	35.2	40.0	88	79 - 126
n-Butyl Acetate	19.8	20.0	99	31 - 144
o-Xylene	18.1	20.0	91	77 - 118
trans-1,2-Dichloroethene	17.0	20.0	85	75 - 121
trans-1,3-Dichloropropene	19.2	20.0	96	69 - 127

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267270

Lab Control Sample
RQ1111029-02

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
1,1,1-Trichloroethane (TCA)	20.3	20.0	101		72 - 128
1,1,2,2-Tetrachloroethane	16.8	20.0	84		72 - 131
1,1,2-Trichloroethane	21.1	20.0	105		80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.9	20.0	94		68 - 136
1,1-Dichloroethane (1,1-DCA)	20.9	20.0	104		76 - 124
1,1-Dichloroethene (1,1-DCE)	19.7	20.0	99		72 - 129
1,2,4-Trichlorobenzene	19.9	20.0	100		70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.1	20.0	106		62 - 131
1,2-Dibromoethane	21.1	20.0	105		78 - 125
1,2-Dichlorobenzene	20.0	20.0	100		79 - 124
1,2-Dichloroethane	21.6	20.0	108		73 - 127
1,2-Dichloropropane	20.7	20.0	104		80 - 123
1,3-Dichlorobenzene	20.1	20.0	101		78 - 124
1,4-Dichlorobenzene	19.9	20.0	99		78 - 123
n-Butanol	1520	1000	151	*	70 - 130
2-Butanone (MEK)	20.1	20.0	101		60 - 133
2-Hexanone	22.1	20.0	110		61 - 131
4-Methyl-2-pentanone	22.1	20.0	111		61 - 132
Acetone	18.7	20.0	94		54 - 139
Benzene	20.2	20.0	101		78 - 121
Bromodichloromethane	21.3	20.0	106		80 - 125
Bromoform	23.5	20.0	117		68 - 130
Bromomethane	15.2	20.0	76		57 - 144
Carbon Disulfide	22.0	20.0	110		52 - 140
Carbon Tetrachloride	22.1	20.0	111		68 - 133
Chlorobenzene	20.2	20.0	101		80 - 121
Chloroethane	20.2	20.0	101		71 - 130
Chloroform	20.5	20.0	102		78 - 125
Chloromethane	18.7	20.0	94		61 - 138
Cyclohexane	18.4	20.0	92		57 - 126
Dibromochloromethane	22.4	20.0	112		78 - 133
Dichlorodifluoromethane (CFC 12)	18.8	20.0	94		45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/29/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267270

Analyte Name	Lab Control Sample RQ1111029-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.8	20.0	99	75 - 125
Ethylbenzene	20.1	20.0	100	78 - 123
Isopropylbenzene (Cumene)	22.2	20.0	111	73 - 133
Methyl Acetate	20.1	20.0	101	57 - 157
Methyl tert-Butyl Ether	20.9	20.0	105	75 - 126
Methylcyclohexane	17.9	20.0	89	61 - 125
Styrene	20.6	20.0	103	80 - 132
Tetrachloroethene (PCE)	20.1	20.0	100	72 - 131
Toluene	20.5	20.0	102	78 - 122
Trichloroethene (TCE)	24.1	20.0	120	74 - 127
Trichlorofluoromethane (CFC 11)	20.6	20.0	103	69 - 141
Vinyl Chloride	20.2	20.0	101	72 - 138
cis-1,2-Dichloroethene	21.0	20.0	105	78 - 122
cis-1,3-Dichloropropene	20.6	20.0	103	77 - 125
m,p-Xylenes	40.3	40.0	101	79 - 126
n-Butyl Acetate	22.2	20.0	111	31 - 144
o-Xylene	20.0	20.0	100	77 - 118
trans-1,2-Dichloroethene	20.2	20.0	101	75 - 121
trans-1,3-Dichloropropene	20.3	20.0	102	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/30/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267361

Analyte Name	Lab Control Sample RQ1111182-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.5	20.0	97	72 - 128
1,1,2,2-Tetrachloroethane	18.7	20.0	93	72 - 131
1,1,2-Trichloroethane	19.9	20.0	99	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.6	20.0	93	68 - 136
1,1-Dichloroethane (1,1-DCA)	20.3	20.0	101	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.5	20.0	93	72 - 129
1,2,4-Trichlorobenzene	19.6	20.0	98	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.6	20.0	93	62 - 131
1,2-Dibromoethane	19.5	20.0	97	78 - 125
1,2-Dichlorobenzene	19.3	20.0	97	79 - 124
1,2-Dichloroethane	20.8	20.0	104	73 - 127
1,2-Dichloropropane	20.2	20.0	101	80 - 123
1,3-Dichlorobenzene	19.7	20.0	99	78 - 124
1,4-Dichlorobenzene	19.4	20.0	97	78 - 123
n-Butanol	1160	1000	116	70 - 130
2-Butanone (MEK)	19.5	20.0	98	60 - 133
2-Hexanone	21.0	20.0	105	61 - 131
4-Methyl-2-pentanone	20.9	20.0	105	61 - 132
Acetone	20.1	20.0	100	54 - 139
Benzene	19.5	20.0	97	78 - 121
Bromodichloromethane	20.8	20.0	104	80 - 125
Bromoform	22.0	20.0	110	68 - 130
Bromomethane	15.3	20.0	77	57 - 144
Carbon Disulfide	21.0	20.0	105	52 - 140
Carbon Tetrachloride	20.7	20.0	104	68 - 133
Chlorobenzene	19.6	20.0	98	80 - 121
Chloroethane	19.8	20.0	99	71 - 130
Chloroform	20.4	20.0	102	78 - 125
Chloromethane	18.3	20.0	92	61 - 138
Cyclohexane	20.3	20.0	101	57 - 126
Dibromochloromethane	21.4	20.0	107	78 - 133
Dichlorodifluoromethane (CFC 12)	17.6	20.0	88	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/30/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267361

	Lab Control Sample RQ1111182-02			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Dichloromethane	19.9	20.0	100	75 - 125
Ethylbenzene	19.6	20.0	98	78 - 123
Isopropylbenzene (Cumene)	21.3	20.0	106	73 - 133
Methyl Acetate	19.6	20.0	98	57 - 157
Methyl tert-Butyl Ether	19.4	20.0	97	75 - 126
Methylcyclohexane	19.8	20.0	99	61 - 125
Styrene	20.0	20.0	100	80 - 132
Tetrachloroethene (PCE)	19.1	20.0	95	72 - 131
Toluene	20.2	20.0	101	78 - 122
Trichloroethene (TCE)	20.0	20.0	100	74 - 127
Trichlorofluoromethane (CFC 11)	20.1	20.0	101	69 - 141
Vinyl Chloride	19.4	20.0	97	72 - 138
cis-1,2-Dichloroethene	20.9	20.0	104	78 - 122
cis-1,3-Dichloropropene	20.5	20.0	103	77 - 125
m,p-Xylenes	39.2	40.0	98	79 - 126
n-Butyl Acetate	20.8	20.0	104	31 - 144
o-Xylene	19.5	20.0	98	77 - 118
trans-1,2-Dichloroethene	19.0	20.0	95	75 - 121
trans-1,3-Dichloropropene	20.9	20.0	104	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/31/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267468

Analyte Name	Lab Control Sample RQ1111185-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.7	20.0	98	72 - 128
1,1,2,2-Tetrachloroethane	21.8	20.0	109	72 - 131
1,1,2-Trichloroethane	20.8	20.0	104	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.2	20.0	91	68 - 136
1,1-Dichloroethane (1,1-DCA)	20.5	20.0	102	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.8	20.0	94	72 - 129
1,2,4-Trichlorobenzene	21.3	20.0	107	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	24.2	20.0	121	62 - 131
1,2-Dibromoethane	21.8	20.0	109	78 - 125
1,2-Dichlorobenzene	20.7	20.0	103	79 - 124
1,2-Dichloroethane	21.9	20.0	110	73 - 127
1,2-Dichloropropane	21.0	20.0	105	80 - 123
1,3-Dichlorobenzene	21.4	20.0	107	78 - 124
1,4-Dichlorobenzene	21.2	20.0	106	78 - 123
n-Butanol	1230	1000	122	70 - 130
2-Butanone (MEK)	20.4	20.0	102	60 - 133
2-Hexanone	22.7	20.0	113	61 - 131
4-Methyl-2-pentanone	22.1	20.0	110	61 - 132
Acetone	20.3	20.0	102	54 - 139
Benzene	20.0	20.0	100	78 - 121
Bromodichloromethane	21.8	20.0	109	80 - 125
Bromoform	25.1	20.0	126	68 - 130
Bromomethane	15.2	20.0	76	57 - 144
Carbon Disulfide	22.8	20.0	114	52 - 140
Carbon Tetrachloride	22.0	20.0	110	68 - 133
Chlorobenzene	20.9	20.0	105	80 - 121
Chloroethane	18.9	20.0	94	71 - 130
Chloroform	20.5	20.0	103	78 - 125
Chloromethane	17.4	20.0	87	61 - 138
Cyclohexane	17.5	20.0	87	57 - 126
Dibromochloromethane	24.0	20.0	120	78 - 133
Dichlorodifluoromethane (CFC 12)	17.6	20.0	88	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 10/31/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267468

Analyte Name	Lab Control Sample RQ1111185-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.8	20.0	99	75 - 125
Ethylbenzene	20.8	20.0	104	78 - 123
Isopropylbenzene (Cumene)	22.9	20.0	115	73 - 133
Methyl Acetate	20.2	20.0	101	57 - 157
Methyl tert-Butyl Ether	20.2	20.0	101	75 - 126
Methylcyclohexane	17.2	20.0	86	61 - 125
Styrene	21.5	20.0	108	80 - 132
Tetrachloroethene (PCE)	20.8	20.0	104	72 - 131
Toluene	20.4	20.0	102	78 - 122
Trichloroethene (TCE)	20.3	20.0	102	74 - 127
Trichlorofluoromethane (CFC 11)	19.4	20.0	97	69 - 141
Vinyl Chloride	18.9	20.0	94	72 - 138
cis-1,2-Dichloroethene	20.3	20.0	102	78 - 122
cis-1,3-Dichloropropene	21.2	20.0	106	77 - 125
m,p-Xylenes	41.6	40.0	104	79 - 126
n-Butyl Acetate	22.4	20.0	112	31 - 144
o-Xylene	20.9	20.0	105	77 - 118
trans-1,2-Dichloroethene	19.6	20.0	98	75 - 121
trans-1,3-Dichloropropene	21.4	20.0	107	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 1/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267722

	Lab Control Sample RQ1111072-02			Duplicate Lab Control Sample RQ1111072-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	18.4	20.0	92	17.6	20.0	88	72 - 128	5	30
1,1,2,2-Tetrachloroethane	18.5	20.0	92	19.7	20.0	98	72 - 131	6	30
1,1,2-Trichloroethane	17.8	20.0	89	18.3	20.0	91	80 - 122	3	30
1,1,2-Trichloro-1,2,2-trifluoroethane	17.9	20.0	90	16.7	20.0	84	68 - 136	7	30
1,1-Dichloroethane (1,1-DCA)	19.5	20.0	98	18.9	20.0	94	76 - 124	3	30
1,1-Dichloroethene (1,1-DCE)	17.6	20.0	88	16.9	20.0	84	72 - 129	4	30
1,2,4-Trichlorobenzene	18.0	20.0	90	17.9	20.0	90	70 - 133	<1	30
1,2-Dibromo-3-chloropropane (DBCP)	17.6	20.0	88	18.3	20.0	92	62 - 131	4	30
1,2-Dibromoethane	18.2	20.0	91	18.9	20.0	95	78 - 125	4	30
1,2-Dichlorobenzene	19.0	20.0	95	18.7	20.0	93	79 - 124	2	30
1,2-Dichloroethane	19.6	20.0	98	19.8	20.0	99	73 - 127	1	30
1,2-Dichloropropane	19.5	20.0	98	19.1	20.0	95	80 - 123	2	30
1,3-Dichlorobenzene	19.8	20.0	99	19.1	20.0	95	78 - 124	4	30
1,4-Dichlorobenzene	19.5	20.0	98	18.8	20.0	94	78 - 123	4	30
n-Butanol	856	1000	85	873	1000	87	70 - 130	2	30
2-Butanone (MEK)	17.6	20.0	88	17.8	20.0	89	60 - 133	1	30
2-Hexanone	18.6	20.0	93	21.1	20.0	105	61 - 131	13	30
4-Methyl-2-pentanone	18.2	20.0	91	19.7	20.0	99	61 - 132	8	30
Acetone	18.5	20.0	93	18.7	20.0	94	54 - 139	1	30
Benzene	18.8	20.0	94	17.9	20.0	90	78 - 121	5	30
Bromodichloromethane	20.3	20.0	102	20.1	20.0	100	80 - 125	1	30
Bromoform	21.6	20.0	108	21.5	20.0	107	68 - 130	<1	30
Bromomethane	14.2	20.0	71	13.2	20.0	66	57 - 144	7	30
Carbon Disulfide	23.8	20.0	119	24.1	20.0	121	52 - 140	1	30
Carbon Tetrachloride	20.2	20.0	101	19.3	20.0	96	68 - 133	5	30
Chlorobenzene	19.2	20.0	96	18.6	20.0	93	80 - 121	3	30
Chloroethane	18.5	20.0	93	17.8	20.0	89	71 - 130	4	30
Chloroform	19.2	20.0	96	18.9	20.0	94	78 - 125	2	30
Chloromethane	16.0	20.0	80	15.0	20.0	75	61 - 138	6	30
Cyclohexane	19.9	20.0	100	19.4	20.0	97	57 - 126	3	30
Dibromochloromethane	20.7	20.0	104	20.9	20.0	105	78 - 133	<1	30
Dichlorodifluoromethane (CFC 12)	16.1	20.0	80	15.4	20.0	77	45 - 159	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 1/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267722

Analyte Name	Lab Control Sample RQ1111072-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1111072-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Dichloromethane	18.5	20.0	93	18.2	20.0	91	75 - 125	2	30
Ethylbenzene	19.8	20.0	99	18.5	20.0	93	78 - 123	6	30
Isopropylbenzene (Cumene)	21.6	20.0	108	20.2	20.0	101	73 - 133	6	30
Methyl Acetate	18.0	20.0	90	18.7	20.0	94	57 - 157	4	30
Methyl tert-Butyl Ether	17.1	20.0	86	17.7	20.0	88	75 - 126	3	30
Methylcyclohexane	19.7	20.0	99	19.4	20.0	97	61 - 125	2	30
Styrene	19.5	20.0	97	18.9	20.0	95	80 - 132	3	30
Tetrachloroethene (PCE)	18.9	20.0	95	18.0	20.0	90	72 - 131	5	30
Toluene	19.2	20.0	96	18.5	20.0	92	78 - 122	4	30
Trichloroethene (TCE)	18.5	20.0	92	17.6	20.0	88	74 - 127	5	30
Trichlorofluoromethane (CFC 11)	19.3	20.0	96	17.7	20.0	88	69 - 141	9	30
Vinyl Chloride	18.3	20.0	92	16.9	20.0	84	72 - 138	8	30
cis-1,2-Dichloroethene	19.3	20.0	97	18.9	20.0	94	78 - 122	2	30
cis-1,3-Dichloropropene	19.1	20.0	95	19.1	20.0	96	77 - 125	<1	30
m,p-Xylenes	39.2	40.0	98	37.2	40.0	93	79 - 126	5	30
n-Butyl Acetate	18.6	20.0	93	18.8	20.0	94	31 - 144	1	30
o-Xylene	19.5	20.0	98	18.6	20.0	93	77 - 118	5	30
trans-1,2-Dichloroethene	18.1	20.0	91	17.6	20.0	88	75 - 121	3	30
trans-1,3-Dichloropropene	18.8	20.0	94	18.8	20.0	94	69 - 127	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 2/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267849

	Lab Control Sample RQ1111238-02			Duplicate Lab Control Sample RQ1111238-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	17.5	20.0	88	17.8	20.0	89	72 - 128	1	30
1,1,2,2-Tetrachloroethane	19.8	20.0	99	20.2	20.0	101	72 - 131	2	30
1,1,2-Trichloroethane	19.3	20.0	97	19.0	20.0	95	80 - 122	2	30
1,1,2-Trichloro-1,2,2-trifluoroethane	16.8	20.0	84	17.1	20.0	85	68 - 136	2	30
1,1-Dichloroethane (1,1-DCA)	18.9	20.0	95	18.9	20.0	95	76 - 124	<1	30
1,1-Dichloroethene (1,1-DCE)	16.6	20.0	83	17.0	20.0	85	72 - 129	2	30
1,2,4-Trichlorobenzene	18.6	20.0	93	18.6	20.0	93	70 - 133	<1	30
1,2-Dibromo-3-chloropropane (DBCP)	19.1	20.0	96	19.1	20.0	96	62 - 131	<1	30
1,2-Dibromoethane	19.9	20.0	99	19.2	20.0	96	78 - 125	4	30
1,2-Dichlorobenzene	19.5	20.0	97	19.1	20.0	95	79 - 124	2	30
1,2-Dichloroethane	20.5	20.0	102	20.4	20.0	102	73 - 127	<1	30
1,2-Dichloropropane	19.2	20.0	96	19.5	20.0	98	80 - 123	1	30
1,3-Dichlorobenzene	19.3	20.0	97	19.7	20.0	98	78 - 124	2	30
1,4-Dichlorobenzene	19.4	20.0	97	19.6	20.0	98	78 - 123	<1	30
n-Butanol	1010	1000	101	1000	1000	100	70 - 130	<1	30
2-Butanone (MEK)	18.5	20.0	92	18.6	20.0	93	60 - 133	<1	30
2-Hexanone	18.7	20.0	93	19.0	20.0	95	61 - 131	2	30
4-Methyl-2-pentanone	18.4	20.0	92	19.1	20.0	96	61 - 132	4	30
Acetone	18.5	20.0	92	19.2	20.0	96	54 - 139	4	30
Benzene	18.1	20.0	91	18.3	20.0	91	78 - 121	<1	30
Bromodichloromethane	20.5	20.0	102	20.0	20.0	100	80 - 125	2	30
Bromoform	22.4	20.0	112	21.8	20.0	109	68 - 130	2	30
Bromomethane	13.5	20.0	68	14.0	20.0	70	57 - 144	4	30
Carbon Disulfide	22.8	20.0	114	22.7	20.0	113	52 - 140	<1	30
Carbon Tetrachloride	19.2	20.0	96	19.1	20.0	95	68 - 133	<1	30
Chlorobenzene	19.3	20.0	96	19.0	20.0	95	80 - 121	1	30
Chloroethane	17.8	20.0	89	17.9	20.0	90	71 - 130	<1	30
Chloroform	19.1	20.0	95	19.4	20.0	97	78 - 125	2	30
Chloromethane	15.1	20.0	76	15.5	20.0	77	61 - 138	2	30
Cyclohexane	17.8	20.0	89	18.8	20.0	94	57 - 126	5	30
Dibromochloromethane	21.6	20.0	108	21.2	20.0	106	78 - 133	2	30
Dichlorodifluoromethane (CFC 12)	15.1	20.0	75	15.5	20.0	77	45 - 159	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 2/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 267849

	Lab Control Sample RQ1111238-02			Duplicate Lab Control Sample RQ1111238-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Dichloromethane	18.7	20.0	93	18.6	20.0	93	75 - 125	<1	30
Ethylbenzene	18.8	20.0	94	18.9	20.0	94	78 - 123	<1	30
Isopropylbenzene (Cumene)	20.3	20.0	102	20.4	20.0	102	73 - 133	<1	30
Methyl Acetate	18.8	20.0	94	18.7	20.0	94	57 - 157	<1	30
Methyl tert-Butyl Ether	18.1	20.0	90	18.3	20.0	91	75 - 126	1	30
Methylcyclohexane	18.0	20.0	90	18.9	20.0	94	61 - 125	4	30
Styrene	19.5	20.0	98	19.0	20.0	95	80 - 132	3	30
Tetrachloroethene (PCE)	18.1	20.0	91	18.3	20.0	92	72 - 131	<1	30
Toluene	18.5	20.0	93	18.8	20.0	94	78 - 122	1	30
Trichloroethene (TCE)	18.0	20.0	90	17.7	20.0	89	74 - 127	1	30
Trichlorofluoromethane (CFC 11)	17.9	20.0	89	18.6	20.0	93	69 - 141	4	30
Vinyl Chloride	17.1	20.0	86	17.8	20.0	89	72 - 138	4	30
cis-1,2-Dichloroethene	18.8	20.0	94	19.1	20.0	96	78 - 122	2	30
cis-1,3-Dichloropropene	19.7	20.0	98	19.5	20.0	98	77 - 125	<1	30
m,p-Xylenes	37.3	40.0	93	37.1	40.0	93	79 - 126	<1	30
n-Butyl Acetate	19.2	20.0	96	18.9	20.0	94	31 - 144	2	30
o-Xylene	18.8	20.0	94	18.6	20.0	93	77 - 118	1	30
trans-1,2-Dichloroethene	17.4	20.0	87	17.5	20.0	87	75 - 121	<1	30
trans-1,3-Dichloropropene	19.1	20.0	96	19.3	20.0	97	69 - 127	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 3/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 268117

	Lab Control Sample RQ1111161-02			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Ethane	26.2	26.0	101	56 - 148
Ethene	23.2	24.3	95	58 - 155
Methane	26.1	26.2	100	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 4/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 268312

Lab Control Sample
RQ1111222-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	30.3	26.0	116	56 - 148
Ethene	27.4	24.3	112	58 - 155
Methane	30.4	26.2	116	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 7/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 268430

Analyte Name	Lab Control Sample RQ1111302-02 Result	Spike Amount	% Rec	% Rec Limits
Ethane	25.7	26.0	99	56 - 148
Ethene	22.8	24.3	94	58 - 155
Methane	25.9	26.2	99	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 7/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 268433

Analyte Name	Lab Control Sample RQ1111303-02 Result	Spike Amount	% Rec	% Rec Limits
Ethane	23.8	26.0	92	56 - 148
Ethene	22.1	24.3	91	58 - 155
Methane	24.2	26.2	92	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 8/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 268565

Analyte Name	Lab Control Sample RQ1111335-02 Result	Spike Amount	% Rec	% Rec Limits
Ethane	24.3	26.0	93	56 - 148
Ethene	21.8	24.3	90	58 - 155
Methane	24.4	26.2	93	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 9/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 268842

Lab Control Sample
RQ1111426-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	24.4	26.0	94	56 - 148
Ethene	21.4	24.3	88	58 - 155
Methane	24.2	26.2	92	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 7/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 268467

	Lab Control Sample RQ1111307-02			Duplicate Lab Control Sample RQ1111307-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.03	1.00	103	1.04	1.00	104	70 - 130	<1	30
Acetic Acid	9.70	10.0	97	9.70	10.0	97	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.84	10.0	98	10.3	10.0	103	78 - 113	4	30
Lactic Acid	8.82	9.97	88	8.82	9.97	88	61 - 109	<1	30
Propionic Acid	9.07	9.97	91	8.66	9.97	87	80 - 125	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/ 9/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 268843

	Lab Control Sample RQ1111427-02			Duplicate Lab Control Sample RQ1111427-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.08	1.00	108	1.04	1.00	104	70 - 130	4	30
Acetic Acid	9.47	10.0	95	9.50	10.0	95	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.48	10.0	95	9.84	10.0	98	78 - 113	4	30
Lactic Acid	9.08	9.97	91	8.99	9.97	90	61 - 109	<1	30
Propionic Acid	8.42	9.97	84	8.47	9.97	85	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/11/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 269418

Analyte Name	Lab Control Sample RQ1111632-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1111632-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Pyruvic Acid	1.02	1.00	102	1.04	1.00	104	70 - 130	2	30
Acetic Acid	9.23	10.0	92	9.26	10.0	93	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.3	10.0	103	10.6	10.0	106	78 - 113	2	30
Lactic Acid	8.78	9.97	88	8.85	9.97	89	61 - 109	<1	30
Propionic Acid	8.79	9.97	88	8.64	9.97	87	80 - 125	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272 10/25-27/11
Sample Matrix: Water

Service Request: R1106024
Date Analyzed: 11/14/11 - 11/15/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 269468

	Lab Control Sample RQ1111655-02			Duplicate Lab Control Sample RQ1111655-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.02	1.00	102	1.04	1.00	104	70 - 130	2	30
Acetic Acid	9.35	10.0	94	9.33	10.0	93	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.87	10.0	99	9.74	10.0	97	78 - 113	1	30
Lactic Acid	9.10	9.97	91	9.18	9.97	92	61 - 109	<1	30
Propionic Acid	8.45	9.97	85	8.35	9.97	84	80 - 125	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: Rachel Donahue

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
[illegible]	10/ /2011			W	16	3	2	1	3	1	3	1	1	1	RED 10/25
[illegible]	10/ /2011			W	16	3	2	1	3	1	3	1	1	1	RED 10/25
[illegible]	10/ /2011			W	16	3	2	1	3	1	3	1	1	1	RED 10/25
[illegible]	10/ /2011			W	16	3	2	1	3	1	3	1	1	1	RED 10/25
[illegible]	10/ /2011			W	16	3	2	1	3	1	3	1	1	1	RED 10/25
LC34-IW0076-075.0-20111025	10/25/2011	15:02	001, 002	W	13	3	2	1	3		3			1	
LC34-BW0001A-024.5-20111025	10/25/2011	9:55	-003, 004	W	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001B-031.5-20111025	10/25/2011	10:55	-005, 006	W	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001C-038.5-20111025	10/25/2011	11:41	-007 -008	W	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001D-045.5-20111025	10/25/2011	14:40	-009, 010	W	16	3	2	1	3	1	3	1	1	1	

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: _TR0272A_____

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: _NASA KEDD_____

Comments/Special Instructions:

R1106024
GeoSyntec Consultants
ESTCP PED LC34 TR0272 10/25/11

RELINQUISHED BY:

Signature: Rachel Donahue

Printed Name: Rachel Donahue

Firm: GeoSyntec Consultants

Date/Time: 10/25/11 10:30

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: FEDEX

Date/Time: _____

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: [illegible]

Printed Name: [illegible]

Firm: CAS

Date/Time: 10/26/11 ~~1000~~ 1000

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: Rachel Donahue

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-BW0001E-052.5-201110**25**	10/25/2011	14:00	-011, 012	W	16	3	2	1	3	1	3	1	1	1	
LC34-BW0001F-059.5-201110**25**	10/25/2011	13:15	-013, 014	W	16	3	2	1	3	1	3	1	1	1	
LC34-BW0002A-024.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0002B-034.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0002C-044.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0002D-045.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0002E-052.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0002B-059.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0003A-024.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0003B-034.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1106024
GeoSyntec Consultants
ESTCP PED LC34 TR0272 10/26/11

Invoice Information

P.O. # ____

Bill to: TR0272A

RELINQUISHED BY:

Signature: Rachel Donahue

Printed Name: Rachel Donahue

Firm: Geosyntec Consultants

Date/Time: 10/25/11 16:30

RECEIVED BY:

Signature: ____

Printed Name: KEDEX

Firm: ____

Date/Time: ____

RELINQUISHED BY:

Signature: ____

Printed Name: ____

Firm: ____

Date/Time: ____

RECEIVED BY:

Signature: Gregory LaFave

Printed Name: Gregory LaFave

Firm: CAS

Date/Time: 10/26/11 1000

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: Rachel Donahue

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-BW0003C-038.5-201110	10/ /2011			W	15	3	2	1	3		3	1	1		RED 10/25
LC34-BW0003D-043.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0003E-052.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-BW0003F-058.5-201110	10/ /2011			W	12	3	2	1	3		3				RED 10/25
LC34-IW0067D-040.5-20111025	10/25/2011	12:02	-015	W	3	3									
LC34-IW0067D1-068.0-20111025	10/25/2011	13:36	-016	W	3	3									
LC34-IW0070D-040.5-20111025	10/25/2011	11:00	-017	W	3	3									
LC34-IW0070D1-070.0-20111025	10/25/2011	11:24	-018	W	3	3									
LC34-IW0071D-040.5-20111025	10/25/2011	10:04	-019	W	3	3									
LC34-IW0071D1-070.0-20111025	10/25/2011	10:26	-020	W	3	3									

TURNAROUND REQUIREMENTS

_____ 24 hr _____ 48 hr _____ 5 BD

__X__ Standard (15 BD)

_____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: _TR0272A_____

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

X EDD?: NASA KEDD_____

Comments/Special Instructions:

R1000024

RELINQUISHED BY:

Signature: Rachel Donahue

Printed Name: Rachel Donahue

Firm: Geosyntec Consultants

Date/Time: 10/25/11 16:30

RECEIVED BY:

Signature: _____

Printed Name: FEDEX

Firm: _____

Date/Time: _____

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: Gregory LaFons

Printed Name: Gregory LaFons

Firm: CAS

Date/Time: 10/26/11 1000

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: Rachel Donahue

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-TB-20111025	10/25/2011	N/A	-024		3	3									
					0										
					0										
					0										
					0										
					0										
					0										
					0										
					0										
					0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1106CD4

RELINQUISHED BY:

Signature: Rachel Donahue

Printed Name: Rachel Donahue

Firm: Geosyntec Consultants

Date/Time: 10/25/11 16:30

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

FEDEX

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: Gregory Catoe

Printed Name: Gregory Catoe

Firm: CAS

Date/Time: 10/26/11 1000

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: Rachel Donahue

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-BW0001B-031.5-20111025-D	10/25/2011	10:55	-005 QC KB 10/26/11	W	3	3									
LC34-RW0008-052.0-20111[illegible]-D	10/[illegible]/2011			W	[illegible]	[illegible]									RED 10/25
LC34-RW0007-038.5-20111[illegible]-D	10/[illegible]/2011			W	2		2								RED w/ QC
LC34-RW0002-024.5-20111[illegible]-D	10/[illegible]/2011			W	1			1							RED 10/25
LC34-BW0002D-037.5-20111[illegible]-D	10/[illegible]/2011			W	3				3						RED 10/25
LC34-BW0001A-024.5-20111025-D	10/25/2011	9:55	-003 QC KB 10/26/11	W	1					1					
LC34-BW0001C-038.5-20111025-D	10/25/2011	11:41	-007 QC KB 10/26/11	W	3						3				
LC34-BW0001D-045.5-20111025-D	10/25/2011	14:40	-009 QC KB 10/26/11	W	1							1			
LC34-BW0002C-038.5-20111[illegible]-D	10/[illegible]/2011			W	1								1		RED 10/25
LC34-BW0002D-052.5-20111[illegible]-D	10/[illegible]/2011			W	1									1	RED 10/25

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

samples with -D suffix are QC volume for MS/MSD analysis

"D" = QC as per Cory Repta 10/26/11 KB

R1606024

RELINQUISHED BY:

Signature: Rachel Donahue

Printed Name: Rachel Donahue

Firm: Geosyntec Consultants

Date/Time: 10/25/11 16:30

RECEIVED BY:

Signature: _____

Printed Name: _____

Firm: EDF

Date/Time: _____

RELINQUISHED BY:

Signature: _____

Printed Name: _____

Firm: _____

Date/Time: _____

RECEIVED BY:

Signature: Gregory LaFors

Printed Name: Gregory LaFors

Firm: CAS

Date/Time: 10/26/11 1020

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R110602 4

Cooler received on 10/26/11 by: KB **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A	1 T.B. Vial	
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC), CLIENT				
7.	Temperature of cooler(s) upon receipt:	6.0°	3.5°	____	____	____
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 10/26/11 1009

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: ____

PC Secondary Review: KB 10/26/11

Cooler Breakdown: Date: 10/26/11 Time: 1345 by: KB

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO	
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

Explain any discrepancies: ____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH			WC103138C	8/12
≤2	HNO_3				
≤2	H_2SO_4			WC103138D	10/12
<4	$NaHSO_4$				
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-	WC103098C	5/12
	HCl	*	*	411010	9/12

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: ____

Bottle lot numbers: 1-194-001, 090511-2JJ,

Other Comments:

PC Secondary Review: KB 11/7/11

*significant air bubbles: VOA > 5-6 mm ; WC >1 in. diameter

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-BW0002A-024.5-20111026	10/26/2011	950	025	W	12	3	2	1	3		3				
LC34-BW0002B-031.5-20111026	10/26/2011	910	026	W	12	3	2	1	3		3				
LC34-BW0002C-038.5-20111026	10/26/2011	1025	027	W	15	3	2	1	3	1	3	1	1		
LC34-BW0002C-038.5-20111026-D	10/26/2011	1025	QC-027	W	1								1		
LC34-BW0002D-045.5-20111026	10/26/2011	1110	-028	W	12	3	2	1	3		3				
LC34-BW0002E-052.5-20111026	10/26/2011	1230	-029	W	12	3	2	1	3		3				
LC34-BW0002F-059.5-20111026	10/26/2011	1300	-030	W	12	3	2	1	3		3				
LC34-BW0003A-024.5-20111026	10/26/2011	1332	-031	W	12	3	2	1	3		3				
LC34-BW0003D-045.5-20111026	10/26/2011	1409	-032	W	12	3	2	1	3		3				
LC34-TB-20111026	10/26/2011	NA	-033		3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

samples with -D suffix are QC volume for MS/MSD analysis

R1106024
GeoSyntec Consultants
ESTCP PED LC34 TR0272 10/25/11

RELINQUISHED BY:
Signature:
Printed Name: Joseph Bartlett
Firm: GeoSyntec
Date/Time: 10/26/11 — 1630

RECEIVED BY:
Signature:
Printed Name:
Firm: FedEx
Date/Time:

RELINQUISHED BY:
Signature:
Printed Name:
Firm:
Date/Time:

RECEIVED BY:
Signature:
Printed Name: Jessica Hall
Firm: CAS
Date/Time: 10/27/11 0940

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-RW0007-038.5-20111026	10/26/2011	923	-034 -035	W	16	3	2	1	3	1	3	1	1	1	
LC34-RW0007-038.5-20111026-D	10/26/2011	923	-034QC	W	2		2								
LC34-RW0008-052.0-20111026	10/26/2011	1005	-036 -037	W	16	3	2	1	3	1	3	1	1	1	
LC34-RW0008-052.0-20111026-D	10/26/2011	1005	036QC	W	3	3									
LC34-IW0002I-027.5-20111026	10/26/2011	1100	-038 -039	W	16	3	2	1	3	1	3	1	1	1	
LC34-IW0002I-027.5-20111026-D	10/26/2011	1100	-038QC	W	1			1							
LC34-IW0002D-037.5-20111026	10/26/2011	1232	-040-041	W	16	3	2	1	3	1	3	1	1	1	
LC34-IW0002D-037.5-20111026-D	10/26/2011	1232	-040 QC	W	3				3						
LC34-IW0002DI-052.5-20111026	10/26/2011	1340	-042 -043	W	16	3	2	1	3	1	3	1	1	1	
LC34-IW0002DI-052.5-20111026-D	10/26/2011	1340	-042QC	W	1									1	

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

samples with -D suffix are QC volume for MS/MSD analysis

R1106024
GeoSyntec Consultants
ESTCP PED LC34 TR0272 10/25/11

Invoice Information

P.O. #

Bill to: TR0272A

RELINQUISHED BY:

Signature: [signature]

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 10/26/11 – 1630

RECEIVED BY:

Signature:

Printed Name:

Firm: FED EX

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: [signature]

Printed Name: Jessica Hall

Firm: CAS

Date/Time: 10/27/11 0940

Cooler Receipt And Preservat

R1106024
GeoSyntec Consultants
ESTCP PED LC34 TR0272 10/25/11

Project/Client Geosyntec Folder Numbe

Cooler received on 10/27/11 by: JH/GL **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	YES	(NO)*			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	(NO) JH 10/27			N/A 4
5.	Were (Ice) or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	CAS/ROC, CLIENT				
7.	Temperature of cooler(s) upon receipt:	5.3	2.6	2.0		
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	(Yes)	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 10/27/11 0953

Thermometer ID: IR GUN#3 / IR (GUN#4) Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 10/27/11

Cooler Breakdown: Date: 10/27/11 Time: 1310 by: (JH)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO	
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC103135C	8/12				
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC103098C	5/12				
	HCl	*	*	4111010	9/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-194-001, 1-132-001, 090511-2JJ, 082911-2EE

Other Comments:

* 1 broken vial for RSK-175 at location LC34-BW00024-0245, 20111026
* 1 vial with air bubble for locations LC34-BW00024-0245-20111026, IW00021-0525, BW00023-0515, BW00033A-1332

PC Secondary Review: KB 11/8/11 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services

1 Mustard Street, Rochester, NY 14609 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec

Company/Address: 6770 South Washington Ave STE #3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5880

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-BW0003B-031.5-20111027	10/27/2011		-044	W	12	3	2	1	3		3				
LC34-BW0003C-038.5-20111027	10/27/2011		-045	W	15	3	2	1	3	1	3	1	1		
LC34-BW0003E-052.5-20111027	10/27/2011		-046	W	12	3	2	1	3		3				
LC34-BW0003F-059.5-20111027	10/27/2011		-047	W	12	3	2	1	3		3				
LC34-TB-20111027	10/27/2011		-048	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Invoice Information

P.O. #

Bill to: TR0272A

Comments/Special Instructions:

R1106024
GeoSyntec Consultants
ESTCP PED LC34 TR0272 10/25/11

RELINQUISHED BY:

Signature:

Printed Name: Joseph Barlett

Firm: Geosyntec Consultants

Date/Time: 10/27/11 – 1630

RECEIVED BY:

Signature:

Printed Name:

Firm: FWD

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Daniel Ward

Firm: CAS

Date/Time: 10/28/11/ 0954

Cooler Receipt And Preservatio

R1106024
GeoSyntec Consultants
ESTCP PED LC34 TR0272 10/25/11

Project/Client GeoSyntec Folder Number_

Cooler received on 10/28/11 by: DW **COURIER:** CAS UPS ~~FEDEX~~ VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were ~~Ice~~ or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC), CLIENT				
7.	Temperature of cooler(s) upon receipt:	1.2°				
	Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 10/28/11/ 1010

Thermometer ID: IR ~~GUN~~#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples:_____

PC Secondary Review: VB 10/31/11

Cooler Breakdown: Date: 10/28/11 Time: 1300 by: JH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO	
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC103383	10/12				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	411010	9/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-194-001, 090511-2JJ, 1-132-001, 082911-2II

Other Comments:

PC Secondary Review: VB 11/17/11

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

www.siremlab.com
130 Research Lane, Suite 2
Guelph, Ontario N1G 5G3
Phone (519) 822-2265
Fax (519) 822-3151

Certificate of Analysis: Gene-Trac® *Dehalococcoides* Assay

Customer: Cory Repta, Geosyntec Consultants

Project: LC34

Customer Reference: TR0272A

SiREM Reference: S-2368

Report Date: 10-Oct-11

Data Files: MyiQ-DB-DHC-QPCR-0245
MyiQ-DHC-QPCR-0837
iQ5-DHC-QPCR-0839

Table 1: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent Dhc *	*Dehalococcoides* Enumeration/Liter **
LC34-RW0007-038.5-20111026	DHC-7761	26-Oct-11	Groundwater	16-40%	1×10^8
LC34-RW0008-052.0-20111026	DHC-7762	26-Oct-11	Groundwater	23-55%	3×10^8
LC34-BW0001C-038.5-20111025	DHC-7763	25-Oct-11	Groundwater	0.7-2%	6×10^6
LC34-BW0003C-038.5-20111027	DHC-7770	27-Oct-11	Groundwater	33-72%	5×10^8
LC34-BW0001E-052.5-20111025	DHC-7765	25-Oct-11	Groundwater	2-5%	7×10^6
LC34-BW0003E-052.5-20111027	DHC-7766	27-Oct-11	Groundwater	0.2-0.7%	2×10^6

Notes:

* Percent *Dehalococcoides* (Dhc) in microbial population. This value is calculated by dividing the number of Dhc 16S ribosomal ribonucleic acid (rRNA) gene copies by the total number of bacteria as estimated by the mass of DNA extracted from the sample. Range represents normal variation in Dhc enumeration.

** Based on quantification of Dhc 16S rRNA gene copies. Dhc are generally reported to contain one 16S rRNA gene copy per cell; therefore, this number is often interpreted to represent the number of Dhc cells present in the sample.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *Dehalococcoides* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.

Analyst: Kela Bartle

Kela Bartle, B.Sc.
Biotechnology Technologist

Approved: Ximena Druar

Ximena Druar, B.Sc.
Molecular Biology Coordinator

Table 2.1: Detailed Test Parameters, Gene-Trac Test Reference S-2368

Customer Sample ID	LC34-RW0007-038.5-20111026	LC34-RW0008-052.0-20111026	LC34-BW0001C-038.5-20111025
SiREM Sample ID	DHC-7761	DHC-7762	DHC-7763
Date Received	28-Oct-11	28-Oct-11	28-Oct-11
Sample Temperature	6 ºC	6 ºC	6 ºC
Filtration Date	3-Nov-11	3-Nov-11	3-Nov-11
Volume Used for DNA Extraction	500 mL	400 mL	500 mL
DNA Extraction Date	3-Nov-11	3-Nov-11	3-Nov-11
DNA Concentration in Sample (extractable)	1187 ng/L	2258 ng/L	1724 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
qPCR Date Analyzed	3-Nov-11	3-Nov-11	3-Nov-11
Laboratory Controls (see Table 3)	Passed	Passed	Passed
Comments	- -	- -	- -

Notes:

Refer to Table 3 for detailed results of controls.
°C = degrees Celsius
DNA = Deoxyribonucleic acid
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = *Dehalococcoides*
ng/L = nanograms per liter
mL = milliliters

Table 2.2: Detailed Test Parameters, Gene-Trac Test Reference S-2368

Customer Sample ID	LC34-BW0003C-038.5-20111027	LC34-BW0001E-052.5-20111025	LC34-BW0003E-052.5-20111027
SiREM Sample ID	DHC-7770	DHC-7765	DHC-7766
Date Received	28-Oct-11	28-Oct-11	28-Oct-11
Sample Temperature	6 ºC	6 ºC	6 ºC
Filtration Date	3-Nov-11	3-Nov-11	3-Nov-11
Volume Used for DNA Extraction	400 mL	500 mL	500 mL
DNA Extraction Date	3-Nov-11	3-Nov-11	3-Nov-11
DNA Concentration in Sample (extractable)	2629 ng/L	805 ng/L	1518 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
qPCR Date Analyzed	9-Nov-11	3-Nov-11	3-Nov-11
Laboratory Controls (see Table 3)	Passed	Passed	Passed
Comments	- -	- -	- -

Notes:

Refer to Table 3 for detailed results of controls.
°C = degrees Celsius
DNA = Deoxyribonucleic acid
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = *Dehalococcoides*
ng/L = nanograms per liter
mL = milliliters

Table 3: Experimental Control Results, Gene-Trac Test Reference S-2368

Laboratory Control	Analysis Date	Control Description	Spiked Dhc 16S rRNA Gene Copies per Liter	Recovered Dhc 16S rRNA Gene Copies per Liter	Comments
Positive Control Low Concentration	3-Nov-11	qPCR with KB1 genomic DNA (CSLD-0474)	2.5×10^5	2.1×10^5	- -
Positive Control High Concentration	3-Nov-11	qPCR with KB1 genomic DNA (CSHD-0474)	2.7×10^7	4.2×10^7	- -
DNA Extraction Blank	3-Nov-11	DNA extraction sterile water (FB-1558)	0	3.9×10^3U	- -
Negative Control	3-Nov-11	Tris Reagent Blank (TBD-0434)	0	3.9×10^3U	- -
Positive Control Low Concentration	9-Nov-11	qPCR with KB1 genomic DNA (CSLD-0476)	3.4×10^5	2.4×10^5	- -
Positive Control High Concentration	9-Nov-11	qPCR with KB1 genomic DNA (CSHD-0476)	4.6×10^7	2.7×10^7	- -
Negative Control	9-Nov-11	Tris Reagent Blank (TBD-0436)	0	3.9×10^3U	- -

Notes:

Dhc = *Dehalococcoides*

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

2011

Chain-of-Custody Form

SIREM Site Recovery & Management
130 Research Lane, Suite 2 ◦ Guelph, Ontario, Canada N1G 5G3 ◦ Phone (519) 822-2265 or toll free 1-866-251-1747 Fax (519) 822-3151
www.siremlab.com

Lab # S-2368

Project Name: LC34	Project #: TR0272A
Project Manager: CORY REPTA	
Email Address: crepta@geosyntec.com	
Company: GEOSYNTEC CONSULTANTS	
Address: 130 RESEARCH LANE, STE. 2 GUELPH, ON, CANADA	
Phone #: 519-822-2230	Fax #:
Sampler's Signature:	Sampler's Printed Name: JOSEPH BARTLETT

Analysis

Preservative

Preservative Key: 0. None; 1. HCl; 2. Other ____; 3. Other ____

Customer Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Gene-Trac Dhc	Gene-Trac VC	Gene-Trac Dhb	Other Information
LC34-RW0007-038.5-20111026	10/26/11	0923	W	1	X	X		
LC34-RW0008-052.0-20111026	10/26/11	1005	W	1	X	X		
LC34-BW0001C-038.5-20111025	10/25/11	1141	W	1	X	X		
LC34-BW0003C-038.5-20111027	10/27/11	1055	W	1	X	X		
LC34-BW0001E-052.5-20111025	10/25/11	1400	W	1	X	X		
LC34-BW0003E-052.5-20111027	10/27/11	1018	W	1	X	X		

Sample Receipt
Cooler Condition: Good
Cooler Temperature: 6°C
Custody Seals: Yes ☐ No ☒

Billing Information
P.O. #:
Bill To:

Turnaround Time Requested
Normal ☐
Rush ☐

For Lab Use Only
Proposal #: ____

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: JOSEPH BARTLETT	Printed Name:	Printed Name:	Printed Name: J. Wilkinson	Printed Name:	Printed Name:
Firm: GEOSYNTEC	Firm:	Firm:	Firm: SIREM	Firm:	Firm:
Date/Time: 10/27/11 – 1630	Date/Time:	Date/Time:	Date/Time: 10/28/11 17:10	Date/Time:	Date/Time:

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

December 06, 2011 Service Request No: R1106413

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 11/10/11

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on November 11, 2011. For your reference, these analyses have been assigned our service request number **R1106413**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1106413
Project:	ESTCP PED LC34/ TR0272 11/10/11	**Date Received:**	11/11/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 11/10/11 and were received for analysis at Columbia Analytical Services from 11/10/11 via a national courier The samples were received at a cooler temperature of. 3.4°C within the guidelines of 0-6°C. No bottle breakage or vial headspace was noted upon sample receipt.

Volatile Organic Compounds GC/MS

Two (2) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Volatile Organics GC

Two (2) samples were analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD recoveries were all within QC limit. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

Approved by Trevor Bentley **Date** 12/7/11

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Bromide, Iodide, Chloride, Nitrate, and Sulfate by IC method 300.0 and Nitrite by method 353.2. Two (2) water samples were analyzed for dissolved metals by ICP method 6010C. These soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All LCS recoveries were within acceptance limits. The LCS and LCSD for Sulfide were within QC limits. The Relative Percent Difference (RPD) calculation was acceptable.

All samples were analyzed within holding times for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analysis of these samples.

Approved by Karen Burke Date 12/7/11

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1024
Sample Matrix:	Water	**Date Received:**	11/11/11
Sample Name:	LC34-RW0007-038.5-20111110		
Lab Code:	R1106413-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**470**		mg/L	2.0	1	NA	11/16/11 09:00	
Bromide	300.0	**21.4**		mg/L	1.0	10	NA	11/30/11 03:37	
Carbon, Total Organic (TOC), Average	9060A	**222**		mg/L	20	20	NA	11/11/11 20:13	
Chloride	300.0	**472**		mg/L	20	100	NA	11/11/11 18:04	
Iodide	300.0	**12.9**		mg/L	2.0	10	NA	12/2/11 13:34	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	11/11/11 17:50	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	11/11/11 14:07	
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	11/11/11 17:50	
Sulfide, Total	SM 4500-S2- F	**16.1**		mg/L	0.97	1	NA	11/11/11 12:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1024
Sample Matrix:	Water	**Date Received:**	11/11/11
Sample Name:	LC34-RW0007-038.5-20111110 Dissolved		
Lab Code:	R1106413-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/14/11	11/18/11 19:45	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/14/11	11/18/11 19:45	
Manganese, Dissolved	6010C	22		µg/L	10	1	11/14/11	11/18/11 19:45	

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1024
Sample Matrix:	Water	**Date Received:**	11/11/11
Sample Name:	LC34-RW0007-038.5-20111110	**Units:**	µg/L
Lab Code:	R1106413-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	11/14/11 15:22		269539	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	11/14/11 15:22		269539	
1,1,2-Trichloroethane	500	U	500	23	100	NA	11/14/11 15:22		269539	
1,1,2-Trichloro-1,2,2-trifluoroethane	**12000**		500	31	100	NA	11/14/11 15:22		269539	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	11/14/11 15:22		269539	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	11/14/11 15:22		269539	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	11/14/11 15:22		269539	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	11/14/11 15:22		269539	
1,2-Dibromoethane	500	U	500	20	100	NA	11/14/11 15:22		269539	
1,2-Dichlorobenzene	500	U	500	20	100	NA	11/14/11 15:22		269539	
1,2-Dichloroethane	500	U	500	20	100	NA	11/14/11 15:22		269539	
1,2-Dichloropropane	500	U	500	29	100	NA	11/14/11 15:22		269539	
1,3-Dichlorobenzene	500	U	500	20	100	NA	11/14/11 15:22		269539	
1,4-Dichlorobenzene	500	U	500	20	100	NA	11/14/11 15:22		269539	
n-Butanol	25000	U	25000	1100	100	NA	11/14/11 15:22		269539	
2-Butanone (MEK)	1000	U	1000	51	100	NA	11/14/11 15:22		269539	
2-Hexanone	1000	U	1000	35	100	NA	11/14/11 15:22		269539	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	11/14/11 15:22		269539	
Acetone	1000	U	1000	98	100	NA	11/14/11 15:22		269539	
Benzene	500	U	500	21	100	NA	11/14/11 15:22		269539	
Bromodichloromethane	500	U	500	20	100	NA	11/14/11 15:22		269539	
Bromoform	500	U	500	27	100	NA	11/14/11 15:22		269539	
Bromomethane	500	U	500	31	100	NA	11/14/11 15:22		269539	
Carbon Disulfide	1000	U	1000	20	100	NA	11/14/11 15:22		269539	
Carbon Tetrachloride	500	U	500	27	100	NA	11/14/11 15:22		269539	
Chlorobenzene	500	U	500	20	100	NA	11/14/11 15:22		269539	
Chloroethane	500	U	500	31	100	NA	11/14/11 15:22		269539	
Chloroform	500	U	500	22	100	NA	11/14/11 15:22		269539	
Chloromethane	500	U	500	24	100	NA	11/14/11 15:22		269539	
Cyclohexane	1000	U	1000	24	100	NA	11/14/11 15:22		269539	
Dibromochloromethane	500	U	500	20	100	NA	11/14/11 15:22		269539	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	11/14/11 15:22		269539	
Dichloromethane	500	U	500	22	100	NA	11/14/11 15:22		269539	
Ethylbenzene	500	U	500	20	100	NA	11/14/11 15:22		269539	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	11/14/11 15:22		269539	
Methyl Acetate	1000	U	1000	23	100	NA	11/14/11 15:22		269539	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1024
Sample Matrix:	Water	**Date Received:**	11/11/11
Sample Name:	LC34-RW0007-038.5-20111110	**Units:**	µg/L
Lab Code:	R1106413-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	11/14/11 15:22		269539	
Methylcyclohexane	1000	U	1000	25	100	NA	11/14/11 15:22		269539	
Styrene	500	U	500	20	100	NA	11/14/11 15:22		269539	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	11/14/11 15:22		269539	
Toluene	500	U	500	20	100	NA	11/14/11 15:22		269539	
Trichloroethene (TCE)	**3500**		500	23	100	NA	11/14/11 15:22		269539	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	11/14/11 15:22		269539	
Vinyl Chloride	**6400**		500	23	100	NA	11/14/11 15:22		269539	
cis-1,2-Dichloroethene	**16000**		500	20	100	NA	11/14/11 15:22		269539	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	11/14/11 15:22		269539	
m,p-Xylenes	500	U	500	20	100	NA	11/14/11 15:22		269539	
n-Butyl Acetate	500	U	500	21	100	NA	11/14/11 15:22		269539	
o-Xylene	500	U	500	20	100	NA	11/14/11 15:22		269539	
trans-1,2-Dichloroethene	**200**	I	500	20	100	NA	11/14/11 15:22		269539	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	11/14/11 15:22		269539	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	11/14/11 15:22	
Dibromofluoromethane	102	89-119	11/14/11 15:22	
Toluene-d8	106	87-121	11/14/11 15:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1024
Sample Matrix:	Water	**Date Received:**	11/11/11
		Date Analyzed:	11/14/11 13:01
Sample Name:	LC34-RW0007-038.5-20111110	**Units:**	µg/L
Lab Code:	R1106413-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	269416
Data File Name:	star1145.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**44**		5.0	
74-85-1	Ethene	**150**		5.0	
74-82-8	Methane	**520**		10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1024
Sample Matrix:	Water	**Date Received:**	11/11/11
		Date Analyzed:	11/15/11 21:15
Sample Name:	LC34-RW0007-038.5-20111110	**Units:**	mg/L
Lab Code:	R1106413-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269617
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111511\X0006807.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**270**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**240**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**16**		5.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Collected: 11/10/11 1059
Date Received: 11/11/11

Sample Name: LC34-RW0008-052.0-20111110
Lab Code: R1106413-003

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**300**		mg/L	2.0	1	NA	11/16/11 09:00	
Bromide	300.0	**4.5**		mg/L	1.0	10	NA	11/30/11 05:06	
Carbon, Total Organic (TOC), Average	9060A	**59.2**		mg/L	4.0	4	NA	11/11/11 21:33	
Chloride	300.0	**652**		mg/L	20	100	NA	11/11/11 18:33	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	12/2/11 13:57	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	11/11/11 18:18	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	11/11/11 14:09	
Sulfate	300.0	**7.3**		mg/L	2.0	10	NA	11/11/11 18:18	
Sulfide, Total	SM 4500-S2- F	**14.4**		mg/L	0.96	1	NA	11/11/11 12:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1059
Sample Matrix:	Water	**Date Received:**	11/11/11
Sample Name:	LC34-RW0008-052.0-20111110 Dissolved		
Lab Code:	R1106413-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/14/11	11/18/11 19:50	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/14/11	11/18/11 19:50	
Manganese, Dissolved	6010C	**16**		µg/L	10	1	11/14/11	11/18/11 19:50	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1059
Sample Matrix:	Water	**Date Received:**	11/11/11
Sample Name:	LC34-RW0008-052.0-20111110	**Units:**	µg/L
Lab Code:	R1106413-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50	U	50	2.4	10	NA	11/14/11 15:52		269539	
1,1,2,2-Tetrachloroethane	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
1,1,2-Trichloroethane	50	U	50	2.4	10	NA	11/14/11 15:52		269539	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1500**		50	3.1	10	NA	11/14/11 15:52		269539	
1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
1,1-Dichloroethene (1,1-DCE)	7.7	I	50	2.9	10	NA	11/14/11 15:52		269539	
1,2,4-Trichlorobenzene	50	U	50	2.6	10	NA	11/14/11 15:52		269539	
1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	10	NA	11/14/11 15:52		269539	
1,2-Dibromoethane	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
1,2-Dichlorobenzene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
1,2-Dichloroethane	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
1,2-Dichloropropane	50	U	50	2.9	10	NA	11/14/11 15:52		269539	
1,3-Dichlorobenzene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
1,4-Dichlorobenzene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
n-Butanol	2500	U	2500	110	10	NA	11/14/11 15:52		269539	
2-Butanone (MEK)	100	U	100	5.1	10	NA	11/14/11 15:52		269539	
2-Hexanone	100	U	100	3.5	10	NA	11/14/11 15:52		269539	
4-Methyl-2-pentanone	100	U	100	2.7	10	NA	11/14/11 15:52		269539	
Acetone	100	U	100	9.8	10	NA	11/14/11 15:52		269539	
Benzene	50	U	50	2.1	10	NA	11/14/11 15:52		269539	
Bromodichloromethane	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Bromoform	50	U	50	2.7	10	NA	11/14/11 15:52		269539	
Bromomethane	50	U	50	3.1	10	NA	11/14/11 15:52		269539	
Carbon Disulfide	100	U	100	2.0	10	NA	11/14/11 15:52		269539	
Carbon Tetrachloride	50	U	50	2.7	10	NA	11/14/11 15:52		269539	
Chlorobenzene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Chloroethane	50	U	50	3.1	10	NA	11/14/11 15:52		269539	
Chloroform	50	U	50	2.2	10	NA	11/14/11 15:52		269539	
Chloromethane	50	U	50	2.4	10	NA	11/14/11 15:52		269539	
Cyclohexane	100	U	100	2.4	10	NA	11/14/11 15:52		269539	
Dibromochloromethane	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	10	NA	11/14/11 15:52		269539	
Dichloromethane	50	U	50	2.2	10	NA	11/14/11 15:52		269539	
Ethylbenzene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Isopropylbenzene (Cumene)	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Methyl Acetate	100	U	100	2.4	10	NA	11/14/11 15:52		269539	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1059
Sample Matrix:	Water	**Date Received:**	11/11/11
Sample Name:	LC34-RW0008-052.0-20111110	**Units:**	µg/L
Lab Code:	R1106413-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Methylcyclohexane	100	U	100	2.5	10	NA	11/14/11 15:52		269539	
Styrene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Tetrachloroethene (PCE)	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Toluene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Trichloroethene (TCE)	**2000**		100	4.7	20	NA	11/14/11 16:51		269539	
Trichlorofluoromethane (CFC 11)	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
Vinyl Chloride	**640**		50	2.4	10	NA	11/14/11 15:52		269539	
cis-1,2-Dichloroethene	**2000**		100	4.0	20	NA	11/14/11 16:51		269539	
cis-1,3-Dichloropropene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
m,p-Xylenes	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
n-Butyl Acetate	50	U	50	2.1	10	NA	11/14/11 15:52		269539	
o-Xylene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	
trans-1,2-Dichloroethene	**14**	I	50	2.0	10	NA	11/14/11 15:52		269539	
trans-1,3-Dichloropropene	50	U	50	2.0	10	NA	11/14/11 15:52		269539	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	11/14/11 15:52	
Dibromofluoromethane	103	89-119	11/14/11 15:52	
Toluene-d8	106	87-121	11/14/11 15:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1059
Sample Matrix:	Water	**Date Received:**	11/11/11
		Date Analyzed:	11/14/11 13:11
Sample Name:	LC34-RW0008-052.0-20111110	**Units:**	µg/L
Lab Code:	R1106413-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	269416
Data File Name:	star1146.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**10**		5.0	
74-85-1	Ethene	**140**		5.0	
74-82-8	Methane	**450**		10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	11/10/11 1059
Sample Matrix:	Water	**Date Received:**	11/11/11
		Date Analyzed:	11/15/11 16:23
Sample Name:	LC34-RW0008-052.0-20111110	**Units:**	mg/L
Lab Code:	R1106413-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269617
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111511\X0006802.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**120**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**22**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.4**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106413-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	11/16/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	11/30/11 02:20	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	11/11/11 18:13	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	11/11/11 12:23	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	12/2/11 13:08	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	11/11/11 12:23	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	11/11/11 14:05	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	11/11/11 12:23	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	11/11/11 12:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106413-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/14/11	11/18/11 17:27	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/14/11	11/18/11 17:27	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	11/14/11	11/18/11 17:27	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106413-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/14/11	11/18/11 17:32	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/14/11	11/18/11 17:32	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	11/14/11	11/18/11 17:32	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111758-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	11/14/11 12:10		269539	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	11/14/11 12:10		269539	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	11/14/11 12:10		269539	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	11/14/11 12:10		269539	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	11/14/11 12:10		269539	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	11/14/11 12:10		269539	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	11/14/11 12:10		269539	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
n-Butanol	250	U	250	11	1	NA	11/14/11 12:10		269539	
2-Butanone (MEK)	10	U	10	0.51	1	NA	11/14/11 12:10		269539	
2-Hexanone	10	U	10	0.35	1	NA	11/14/11 12:10		269539	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	11/14/11 12:10		269539	
Acetone	10	U	10	0.98	1	NA	11/14/11 12:10		269539	
Benzene	5.0	U	5.0	0.21	1	NA	11/14/11 12:10		269539	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Bromoform	5.0	U	5.0	0.27	1	NA	11/14/11 12:10		269539	
Bromomethane	5.0	U	5.0	0.31	1	NA	11/14/11 12:10		269539	
Carbon Disulfide	10	U	10	0.20	1	NA	11/14/11 12:10		269539	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	11/14/11 12:10		269539	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Chloroethane	5.0	U	5.0	0.31	1	NA	11/14/11 12:10		269539	
Chloroform	5.0	U	5.0	0.22	1	NA	11/14/11 12:10		269539	
Chloromethane	5.0	U	5.0	0.24	1	NA	11/14/11 12:10		269539	
Cyclohexane	10	U	10	0.24	1	NA	11/14/11 12:10		269539	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	11/14/11 12:10		269539	
Dichloromethane	5.0	U	5.0	0.22	1	NA	11/14/11 12:10		269539	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Methyl Acetate	10	U	10	0.23	1	NA	11/14/11 12:10		269539	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111758-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Methylcyclohexane	10	U	10	0.25	1	NA	11/14/11 12:10		269539	
Styrene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Toluene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	11/14/11 12:10		269539	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	11/14/11 12:10		269539	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	11/14/11 12:10		269539	
o-Xylene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	11/14/11 12:10		269539	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	11/14/11 12:10	
Dibromofluoromethane	100	89-119	11/14/11 12:10	
Toluene-d8	104	87-121	11/14/11 12:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/14/11 08:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1111629-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	269416
Data File Name:	star1131.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106413
Project:	ESTCP PED LC34 11/10/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/15/11 11:35
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1111686-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	269617
Data File Name:	J:\ACQUDATA\HPLC05\DATA\111511\X0006797.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Analyzed: 11/11/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106413-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1106413-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	6.76	6.8	99	6.80	6.8	100	56 - 138	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Analyzed: 11/11/11 - 12/ 2/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106413-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.930	1.00	93	90 - 110
Chloride	300.0	1.98	2.00	99	90 - 110
Iodide	300.0	0.929	1.00	93	90 - 110
Nitrate as Nitrogen	300.0	0.991	1.00	99	90 - 110
Nitrite as Nitrogen	353.2	0.238	0.250	95	90 - 110
Sulfate	300.0	1.97	2.00	98	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	20.5	20.0	103	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.99	10.0	100	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Analyzed: 11/18/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106413-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	42.2	40	106	80 - 120
Iron, Dissolved	6010C	1020	1000	102	80 - 120
Manganese, Dissolved	6010C	509	500	102	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Analyzed: 11/14/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 269539

	Lab Control Sample RQ1111758-02			Duplicate Lab Control Sample RQ1111758-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	17.8	20.0	89	19.3	20.0	97	72 - 128	8	30
1,1,2,2-Tetrachloroethane	19.8	20.0	99	22.1	20.0	110	72 - 131	11	30
1,1,2-Trichloroethane	18.8	20.0	94	20.6	20.0	103	80 - 122	9	30
1,1,2-Trichloro-1,2,2-trifluoroethane	17.5	20.0	87	18.5	20.0	93	68 - 136	6	30
1,1-Dichloroethane (1,1-DCA)	18.8	20.0	94	20.4	20.0	102	76 - 124	8	30
1,1-Dichloroethene (1,1-DCE)	17.0	20.0	85	18.3	20.0	92	72 - 129	8	30
1,2,4-Trichlorobenzene	18.6	20.0	93	19.4	20.0	97	70 - 133	4	30
1,2-Dibromo-3-chloropropane (DBCP)	19.6	20.0	98	21.3	20.0	107	62 - 131	9	30
1,2-Dibromoethane	19.2	20.0	96	20.9	20.0	104	78 - 125	9	30
1,2-Dichlorobenzene	18.7	20.0	94	20.9	20.0	105	79 - 124	11	30
1,2-Dichloroethane	18.7	20.0	94	20.6	20.0	103	73 - 127	10	30
1,2-Dichloropropane	19.2	20.0	96	20.4	20.0	102	80 - 123	6	30
1,3-Dichlorobenzene	19.0	20.0	95	20.5	20.0	103	78 - 124	8	30
1,4-Dichlorobenzene	19.0	20.0	95	20.3	20.0	102	78 - 123	6	30
n-Butanol	1110	1000	111	1100	1000	110	70 - 130	<1	30
2-Butanone (MEK)	20.3	20.0	102	19.7	20.0	98	60 - 133	3	30
2-Hexanone	19.4	20.0	97	20.1	20.0	101	61 - 131	3	30
4-Methyl-2-pentanone	19.6	20.0	98	19.8	20.0	99	61 - 132	<1	30
Acetone	19.5	20.0	98	19.4	20.0	97	54 - 139	<1	30
Benzene	18.2	20.0	91	19.9	20.0	100	78 - 121	9	30
Bromodichloromethane	19.5	20.0	98	21.3	20.0	106	80 - 125	8	30
Bromoform	22.8	20.0	114	25.0	20.0	125	68 - 130	9	30
Bromomethane	14.9	20.0	74	15.7	20.0	79	57 - 144	6	30
Carbon Disulfide	19.4	20.0	97	16.8	20.0	84	52 - 140	14	30
Carbon Tetrachloride	19.7	20.0	98	21.1	20.0	106	68 - 133	7	30
Chlorobenzene	18.8	20.0	94	20.4	20.0	102	80 - 121	8	30
Chloroethane	17.7	20.0	88	19.1	20.0	96	71 - 130	8	30
Chloroform	18.7	20.0	93	20.5	20.0	102	78 - 125	9	30
Chloromethane	16.1	20.0	81	17.2	20.0	86	61 - 138	6	30
Cyclohexane	19.8	20.0	99	20.4	20.0	102	57 - 126	3	30
Dibromochloromethane	21.0	20.0	105	22.7	20.0	113	78 - 133	7	30
Dichlorodifluoromethane (CFC 12)	17.4	20.0	87	18.9	20.0	94	45 - 159	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Analyzed: 11/14/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 269539

	Lab Control Sample RQ1111758-02			Duplicate Lab Control Sample RQ1111758-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Dichloromethane	18.6	20.0	93	19.8	20.0	99	75 - 125	6	30
Ethylbenzene	18.8	20.0	94	20.1	20.0	100	78 - 123	7	30
Isopropylbenzene (Cumene)	20.0	20.0	100	21.7	20.0	108	73 - 133	8	30
Methyl Acetate	21.4	20.0	107	21.6	20.0	108	57 - 157	1	30
Methyl tert-Butyl Ether	18.0	20.0	90	19.2	20.0	96	75 - 126	7	30
Methylcyclohexane	20.1	20.0	100	21.0	20.0	105	61 - 125	4	30
Styrene	18.4	20.0	92	20.2	20.0	101	80 - 132	9	30
Tetrachloroethene (PCE)	18.6	20.0	93	19.7	20.0	99	72 - 131	6	30
Toluene	18.6	20.0	93	20.3	20.0	101	78 - 122	8	30
Trichloroethene (TCE)	17.8	20.0	89	19.6	20.0	98	74 - 127	10	30
Trichlorofluoromethane (CFC 11)	17.8	20.0	89	18.9	20.0	95	69 - 141	6	30
Vinyl Chloride	18.3	20.0	92	19.8	20.0	99	72 - 138	8	30
cis-1,2-Dichloroethene	19.1	20.0	95	20.5	20.0	103	78 - 122	7	30
cis-1,3-Dichloropropene	19.3	20.0	97	20.4	20.0	102	77 - 125	5	30
m,p-Xylenes	37.6	40.0	94	40.2	40.0	100	79 - 126	7	30
n-Butyl Acetate	19.8	20.0	99	20.5	20.0	102	31 - 144	4	30
o-Xylene	18.4	20.0	92	20.0	20.0	100	77 - 118	8	30
trans-1,2-Dichloroethene	18.3	20.0	91	19.3	20.0	97	75 - 121	6	30
trans-1,3-Dichloropropene	19.1	20.0	95	20.5	20.0	103	69 - 127	7	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Analyzed: 11/14/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 269416

Analyte Name	Lab Control Sample RQ1111629-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1111629-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	25.6	26.0	98	24.4	26.0	94	56 - 148	5	30
Ethene	22.7	24.3	93	21.8	24.3	90	58 - 155	4	30
Methane	24.9	26.2	95	23.8	26.2	91	55 - 150	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/10/11
Sample Matrix: Water

Service Request: R1106413
Date Analyzed: 11/15/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 269617

	Lab Control Sample RQ1111686-02			Duplicate Lab Control Sample RQ1111686-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.03	1.00	103	1.03	1.00	103	70 - 130	<1	30
Acetic Acid	9.55	10.0	96	9.51	10.0	95	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.97	10.0	100	10.2	10.0	102	78 - 113	2	30
Lactic Acid	8.93	9.97	90	8.99	9.97	90	61 - 109	<1	30
Propionic Acid	8.83	9.97	89	8.65	9.97	87	80 - 125	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20111110	11/10/2011	1024	-001, 002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20111110	11/10/2011	1059	-003, 004	W	15	3	2	1	3	1	3	1	1		

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1106413
GeoSyntec Consultants
ESTCP PED LC34 11/10/11

Invoice Information

P.O. #

Bill to: TR0272A

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Barrett	Printed Name: FedEx	Printed Name:	Printed Name: Amy Hentschke
Firm: GeoSyntec	Firm:	Firm:	Firm: CAS
Date/Time: 11/10/11 – 1630	Date/Time:	Date/Time:	Date/Time: 11/11/11 1001

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1106413

Cooler received on 11/11/11 by: JH **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO) N/A
5.	Were **Ice** or **Ice packs** present?	(YES)	NO
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT
7.	Temperature of cooler(s) upon receipt:	3.4°	

Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 11/11/11 1025

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 11/11/11

Cooler Breakdown: Date: 11/11/11 Time: 11/11/11 1332 by: JH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO

4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC10 31388	8/12				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	1111070	9/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 091911-ZLC, 1-087-002, 1-087-002, 1-132-001

Other Comments:

PC Secondary Review: 12/7/11 KB

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 4.doc

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

December 09, 2011 Service Request No: R1106658

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 11/22/11/ TR0272A

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on November 23, 2011. For your reference, these analyses have been assigned our service request number **R1106658**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1106658
Project:	ESTCP PED LC34/ TR0272 11/22/11	**Date Received:**	11/23/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 11/22/11 and were received for analysis at Columbia Analytical Services from 11/10/11 via a national courier The samples were received at a cooler temperature of. 3.2°C within the guidelines of 0-6°C. No bottle breakage or vial headspace was noted upon sample receipt.

Volatile Organic Compounds GC & GC/MS

Two (2) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C and RSK 175.

Initial Calibration Criteria was met for all samples. The 8260C Continuing Calibration Verification (CCV) standard exceeded 20% difference for Acetone on 11/25/11. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Extractable Organics

Two (2) samples were analyzed for Organic Acids by HPLC.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and Duplicate Laboratory Control Sample (DLCS) recoveries were all within QC limit. All Relative Percent Difference (RPD) calculations were acceptable.

Approved by _____ **Date** 12/9/11

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Bromide, Iodide, Chloride, Nitrate, and Sulfate by IC method 300.0 and Nitrite by method 353.2. Two (2) water samples were analyzed for dissolved metals by ICP method 6010C. These soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All LCS recoveries were within acceptance limits. The LCS and LCSD for Sulfide were within QC limits. The Relative Percent Difference (RPD) calculation was acceptable.

All samples were analyzed within holding times for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analysis of these samples.

Approved by _____ **Date** 12/9/4

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1106658

Lab ID	Client ID
R1106658-001	LC34-RW0007-038.5-20111122
R1106658-002	LC34-RW0007-038.5-20111122 Dissolved
R1106658-003	LC34-RW0008-052.0-20111122
R1106658-004	LC34-RW0008-052.0-20111122 Dissolved

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1054
Sample Matrix:	Water	**Date Received:**	11/23/11
Sample Name:	LC34-RW0007-038.5-20111122		
Lab Code:	R1106658-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**430**		mg/L	2.0	1	NA	12/2/11 09:00	
Bromide	300.0	**13.8**		mg/L	1.0	10	NA	11/23/11 15:15	
Carbon, Total Organic (TOC), Average	9060A	**174**		mg/L	20	20	NA	11/30/11 17:08	
Chloride	300.0	**469**		mg/L	20	100	NA	12/1/11 00:47	
Iodide	300.0	**10.6**		mg/L	2.0	10	NA	12/2/11 14:05	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	11/23/11 15:15	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	11/23/11 12:49	
Sulfate	300.0	**2.1**		mg/L	2.0	10	NA	11/23/11 15:15	
Sulfide, Total	SM 4500-S2- F	**17.7**		mg/L	1.0	1	NA	11/23/11 14:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1054
Sample Matrix:	Water	**Date Received:**	11/23/11
Sample Name:	LC34-RW0007-038.5-20111122 Dissolved		
Lab Code:	R1106658-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/30/11	12/5/11 17:52	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/30/11	12/5/11 17:52	
Manganese, Dissolved	6010C	**22**		µg/L	10	1	11/30/11	12/5/11 17:52	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1054
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	11/25/11 19:48
Sample Name:	LC34-RW0007-038.5-20111122	**Units:**	µg/L
Lab Code:	R1106658-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	270945
Data File Name:	J:\ACQUDATA\msvoa10\data\112511\D6533.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**13000**		500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**62**	I	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1100	
78-93-3	2-Butanone (MEK)	1000	U	1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	1000	U	1000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	500	U	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	1000	U	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	500	U	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1054
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	11/25/11 19:48
Sample Name:	LC34-RW0007-038.5-20111122	**Units:**	µg/L
Lab Code:	R1106658-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	270945
Data File Name:	J:\ACQUDATA\msvoa10\data\112511\D6533.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	**3200**		500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**4900**		500	23	
156-59-2	cis-1,2-Dichloroethene	**14000**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	500	U	500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**160**	I	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	11/25/11 19:48	
Dibromofluoromethane	107	89-119	11/25/11 19:48	
Toluene-d8	101	87-121	11/25/11 19:48	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1054
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	12/1/11 09:46
Sample Name:	LC34-RW0007-038.5-20111122	**Units:**	µg/L
Lab Code:	R1106658-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	271747
Data File Name:	star1177.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**41**		5.0	
74-85-1	Ethene	**190**		5.0	
74-82-8	Methane	**510**		10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1054
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	12/6/11 00:33
Sample Name:	LC34-RW0007-038.5-20111122	**Units:**	mg/L
Lab Code:	R1106658-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	271983
Data File Name:	J:\ACQUDATA\HPLC05\DATA\120511\X0006926.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**240**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**170**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	**12**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1130
Sample Matrix:	Water	**Date Received:**	11/23/11
Sample Name:	LC34-RW0008-052.0-20111122		
Lab Code:	R1106658-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**294**		mg/L	2.0	1	NA	12/2/11 09:00	
Bromide	300.0	**4.0**		mg/L	1.0	10	NA	11/23/11 15:28	
Carbon, Total Organic (TOC), Average	9060A	**56.0**		mg/L	4.0	4	NA	11/30/11 17:48	
Chloride	300.0	**620**		mg/L	20	100	NA	12/1/11 02:16	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	12/2/11 14:13	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	11/23/11 15:28	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	11/23/11 12:52	
Sulfate	300.0	**7.3**		mg/L	2.0	10	NA	11/23/11 15:28	
Sulfide, Total	SM 4500-S2- F	**15.0**		mg/L	1.0	1	NA	11/23/11 14:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1130
Sample Matrix:	Water	**Date Received:**	11/23/11
Sample Name:	LC34-RW0008-052.0-20111122 Dissolved		
Lab Code:	R1106658-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/30/11	12/5/11 17:58	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/30/11	12/5/11 17:58	
Manganese, Dissolved	6010C	**16**		µg/L	10	1	11/30/11	12/5/11 17:58	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1130
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	11/25/11 20:18
Sample Name:	LC34-RW0008-052.0-20111122	**Units:**	µg/L
Lab Code:	R1106658-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	270945
Data File Name:	J:\ACQUDATA\msvoa10\data\112511\D6534.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1100**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**7.2**	I	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	100	U	100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1130
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	11/25/11 20:18
Sample Name:	LC34-RW0008-052.0-20111122	**Units:**	µg/L
Lab Code:	R1106658-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	270945
Data File Name:	J:\ACQUDATA\msvoa10\data\112511\D6534.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**1100**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**580**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1600**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**12**	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	11/25/11 20:18	
Dibromofluoromethane	106	89-119	11/25/11 20:18	
Toluene-d8	100	87-121	11/25/11 20:18	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1130
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	12/1/11 09:57
Sample Name:	LC34-RW0008-052.0-20111122	**Units:**	µg/L
Lab Code:	R1106658-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	271747
Data File Name:	star1178.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**10**		5.0	
74-85-1	Ethene	**190**		5.0	
74-82-8	Methane	**450**		10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	11/22/11 1130
Sample Matrix:	Water	**Date Received:**	11/23/11
		Date Analyzed:	12/5/11 21:43
Sample Name:	LC34-RW0008-052.0-20111122	**Units:**	mg/L
Lab Code:	R1106658-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	271983
Data File Name:	J:\ACQUDATA\HPLC05\DATA\120511\X0006923.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**120**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**18**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.6**		1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106658-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	12/2/11 09:00	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	11/23/11 14:48	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	11/30/11 14:29	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	11/30/11 20:45	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	12/2/11 13:08	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	11/23/11 14:48	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	11/23/11 12:48	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	11/23/11 14:48	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	11/23/11 14:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106658-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	12/1/11 01:51	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106658-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/30/11	12/5/11 16:47	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/30/11	12/5/11 16:47	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	11/30/11	12/5/11 16:47	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106658-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	11/30/11	12/5/11 16:57	
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/30/11	12/5/11 16:52	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	11/30/11	12/5/11 16:57	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1106658-MB3	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Iron, Dissolved	6010C	100	U	µg/L	100	1	11/30/11	12/5/11 16:57	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/25/11 13:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1112385-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	270945
Data File Name:	J:\ACQUDATA\msvoa10\data\112511\D6520.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	11/25/11 13:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1112385-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	270945
Data File Name:	J:\ACQUDATA\msvoa10\data\112511\D6520.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	11/25/11 13:21	
Dibromofluoromethane	102	89-119	11/25/11 13:21	
Toluene-d8	101	87-121	11/25/11 13:21	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	12/1/11 08:13
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1112396-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	271747
Data File Name:	star1171.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1106658
Project:	ESTCP PED LC34 11/22/11/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	12/5/11 13:13
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1112473-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	271983
Data File Name:	J:\ACQUDATA\HPLC05\DATA\120511\X0006914.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 11/23/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106658-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1106658-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	6.17	5.5	112	6.25	5.5	113	56 - 138	1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 11/23/11 - 12/ 2/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106658-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.956	1.00	96	90 - 110
Chloride	300.0	1.94	2.00	97	90 - 110
Iodide	300.0	0.929	1.00	93	90 - 110
Nitrate as Nitrogen	300.0	0.968	1.00	97	90 - 110
Nitrite as Nitrogen	353.2	0.238	0.250	95	90 - 110
Sulfate	300.0	1.96	2.00	98	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.8	20.0	99	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.67	10.0	97	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 12/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106658-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	1.94	2.00	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 12/ 5/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1106658-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	41.7	40	104	80 - 120
Iron, Dissolved	6010C	1100	1000	110	80 - 120
Manganese, Dissolved	6010C	535	500	107	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 11/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 270945

Lab Control Sample
RQ1112385-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.1	20.0	96	72 - 128
1,1,2,2-Tetrachloroethane	18.5	20.0	92	72 - 131
1,1,2-Trichloroethane	19.1	20.0	96	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.8	20.0	94	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.8	20.0	99	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.6	20.0	93	72 - 129
1,2,4-Trichlorobenzene	18.7	20.0	93	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.2	20.0	96	62 - 131
1,2-Dibromoethane	19.4	20.0	97	78 - 125
1,2-Dichlorobenzene	19.5	20.0	98	79 - 124
1,2-Dichloroethane	19.5	20.0	98	73 - 127
1,2-Dichloropropane	19.6	20.0	98	80 - 123
1,3-Dichlorobenzene	19.9	20.0	99	78 - 124
1,4-Dichlorobenzene	19.3	20.0	96	78 - 123
n-Butanol	1090	1000	108	70 - 130
2-Butanone (MEK)	18.3	20.0	91	60 - 133
2-Hexanone	18.1	20.0	91	61 - 131
4-Methyl-2-pentanone	18.5	20.0	92	61 - 132
Acetone	19.0	20.0	95	54 - 139
Benzene	19.6	20.0	98	78 - 121
Bromodichloromethane	20.6	20.0	103	80 - 125
Bromoform	23.7	20.0	119	68 - 130
Bromomethane	16.1	20.0	80	57 - 144
Carbon Disulfide	21.2	20.0	106	52 - 140
Carbon Tetrachloride	22.4	20.0	112	68 - 133
Chlorobenzene	19.9	20.0	100	80 - 121
Chloroethane	19.0	20.0	95	71 - 130
Chloroform	19.9	20.0	100	78 - 125
Chloromethane	17.6	20.0	88	61 - 138
Cyclohexane	16.9	20.0	84	57 - 126
Dibromochloromethane	22.2	20.0	111	78 - 133
Dichlorodifluoromethane (CFC 12)	21.4	20.0	107	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 11/25/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 270945

Analyte Name	Lab Control Sample RQ1112385-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.4	20.0	97	75 - 125
Ethylbenzene	19.9	20.0	100	78 - 123
Isopropylbenzene (Cumene)	21.5	20.0	107	73 - 133
Methyl Acetate	19.3	20.0	96	57 - 157
Methyl tert-Butyl Ether	18.7	20.0	93	75 - 126
Methylcyclohexane	16.6	20.0	83	61 - 125
Styrene	19.7	20.0	99	80 - 132
Tetrachloroethene (PCE)	20.3	20.0	101	72 - 131
Toluene	19.3	20.0	96	78 - 122
Trichloroethene (TCE)	19.7	20.0	99	74 - 127
Trichlorofluoromethane (CFC 11)	18.3	20.0	92	69 - 141
Vinyl Chloride	18.8	20.0	94	72 - 138
cis-1,2-Dichloroethene	20.1	20.0	100	78 - 122
cis-1,3-Dichloropropene	20.0	20.0	100	77 - 125
m,p-Xylenes	39.3	40.0	98	79 - 126
n-Butyl Acetate	17.4	20.0	87	31 - 144
o-Xylene	19.6	20.0	98	77 - 118
trans-1,2-Dichloroethene	19.2	20.0	96	75 - 121
trans-1,3-Dichloropropene	19.3	20.0	97	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 12/ 1/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 271747

Lab Control Sample
RQ1112396-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	25.9	26.0	100	56 - 148
Ethene	22.6	24.3	93	58 - 155
Methane	26.0	26.2	99	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 11/22/11/ TR0272A
Sample Matrix: Water

Service Request: R1106658
Date Analyzed: 12/ 5/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 271983

	Lab Control Sample RQ1112473-02			Duplicate Lab Control Sample RQ1112473-03					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Pyruvic Acid	1.05	1.00	105	1.05	1.00	105	70 - 130	<1	30
Acetic Acid	9.76	10.0	98	9.65	10.0	97	70 - 135	1	30
Butanoic Acid (Butyric Acid)	9.60	10.0	96	9.59	10.0	96	78 - 113	<1	30
Lactic Acid	9.02	9.97	90	8.99	9.97	90	61 - 109	<1	30
Propionic Acid	8.96	9.97	90	8.60	9.97	86	80 - 125	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature: JR Bartlett

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-2011 1122	11/22/11	1054	-001 002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-2011 1122	11/22/11	1130	003 004	W	15	3	2	1	3	1	3	1	1		

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1106658
GeoSyntec Consultants
ESTCP PED LC34

RELINQUISHED BY:

Signature: JR Bartlett

Printed Name: Joseph Bartlett

Firm: Geosyntec Consultants

Date/Time: 11/22/11 – 1636

RECEIVED BY:

Signature:

Printed Name:

Firm: PED

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature: Daniel Ward

Printed Name: Daniel Ward

Firm: CAS

Date/Time: 11/23/11 / 1005

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R11-6658

Cooler received on 11/23/11 by: DW COURIER: CAS UPS ~~FEDEX~~ VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	~~YES~~	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	~~YES~~	NO			
3.	Did all bottles arrive in good condition (unbroken)?	~~YES~~	NO			
4.	Did ~~VOA~~ vials, Alkalinity, or Sulfide have significant* air bubbles?	~~YES~~	NO	N/A *		
5.	Were ~~Ice~~ or **Ice packs** present?	~~YES~~	NO			
6.	Where did the bottles originate?	~~CAS~~/ROC, CLIENT				
7.	Temperature of cooler(s) upon receipt:	3.2°				
	Is the temperature within 0° - 6° C?:	~~Yes~~	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 11/23/11/1015

Thermometer ID: IR ~~GUN#3~~ / IR GUN#4 Reading From: Temp Blank / ~~Sample Bottle~~

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: 11/28/11 KB

Cooler Breakdown: Date: 11/28/11 Time: 1347 by: JH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	~~YES~~	NO
2.	Did all bottle labels and tags agree with custody papers?	~~YES~~	NO
3.	Were correct containers used for the tests indicated?	~~YES~~	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		N/A

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC1031385	8/12				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	411100					

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-132-001, 0919n-LL, 1-087-002

Other Comments: * 1 vial for LC34-RW0008 (CRSK)

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

January 04, 2012 Service Request No: R1107094

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272A 12/15/11

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on December 16, 2011. For your reference, these analyses have been assigned our service request number **R1107094**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1107094
Project:	ESTCP PED LC34/ TR0272 12/15/11	**Date Received:**	12/16/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 12/15/11 and were received for analysis at Columbia Analytical Services from 12/16/11 via a national courier The samples were received at a cooler temperature of 1.2°C within the guidelines of 0-6°C. No bottle breakage or vial headspace was noted upon sample receipt.

Volatile Organic Compounds GC/MS

Two (2) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Volatile Organics GC

Two (2) samples were analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD recoveries were all within QC limit. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

Approved by Karen Burchett **Date** 1/4/12

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Bromide, Iodide, Chloride, Nitrate, and Sulfate by IC method 300.0 and Nitrite by method 353.2. Two (2) water samples were analyzed for dissolved metals by ICP method 6010C. These soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Batch QC is included in the report. All LCS recoveries were within acceptance limits. The LCS and LCSD for Sulfide were within QC limits. The Relative Percent Difference (RPD) calculation was acceptable.

All samples were analyzed within holding times for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analysis of these samples.

Approved by Karen Burdett Date 1/4/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1107094

Lab ID	Client ID
R1107094-001	LC34-RW0007-038.5-20111215
R1107094-002	LC34-RW0007-038.5-20111215 Dissolved
R1107094-003	LC34-RW0008-052.0-20111215
R1107094-004	LC34-RW0008-052.0-20111215 Dissolved

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1026
Sample Matrix:	Water	**Date Received:**	12/16/11
Sample Name:	LC34-RW0007-038.5-20111215		
Lab Code:	R1107094-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**455**		mg/L	2.0	1	NA	12/20/11 09:10	
Bromide	300.0	**13.1**		mg/L	1.0	10	NA	12/16/11 19:32	
Carbon, Total Organic (TOC), Average	9060A	**172**		mg/L	20	20	NA	12/17/11 19:55	
Chloride	300.0	**384**		mg/L	20	100	NA	12/22/11 05:18	
Iodide	300.0	**10.9**		mg/L	2.0	10	NA	12/29/11 15:21	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	12/16/11 19:32	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	12/16/11 14:28	
Sulfate	300.0	**4.3**		mg/L	2.0	10	NA	12/16/11 19:32	
Sulfide, Total	SM 4500-S2- F	**13.6**		mg/L	1.0	1	NA	12/19/11 15:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1026
Sample Matrix:	Water	**Date Received:**	12/16/11
Sample Name:	LC34-RW0007-038.5-20111215 Dissolved		
Lab Code:	R1107094-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	12/21/11	12/27/11 17:54	
Iron, Dissolved	6010C	100	U	µg/L	100	1	12/21/11	12/27/11 17:54	
Manganese, Dissolved	6010C	**15**		µg/L	10	1	12/21/11	12/27/11 17:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1026
Sample Matrix:	Water	**Date Received:**	12/16/11
		Date Analyzed:	12/20/11 17:44
Sample Name:	LC34-RW0007-038.5-20111215	**Units:**	µg/L
Lab Code:	R1107094-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	273536
Data File Name:	J:\ACQUDATA\msvoa10\data\122011\D7137.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**7500**		500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**30**	I	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1100	
78-93-3	2-Butanone (MEK)	1000	U	1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	1000	U	1000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	500	U	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	1000	U	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	500	U	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1026
Sample Matrix:	Water	**Date Received:**	12/16/11
		Date Analyzed:	12/20/11 17:44
Sample Name:	LC34-RW0007-038.5-20111215	**Units:**	µg/L
Lab Code:	R1107094-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	273536
Data File Name:	J:\ACQUDATA\msvoa10\data\122011\D7137.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	**1500**		500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**6000**		500	23	
156-59-2	cis-1,2-Dichloroethene	**11000**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	500	U	500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**180**	I	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	12/20/11 17:44	
Dibromofluoromethane	101	89-119	12/20/11 17:44	
Toluene-d8	105	87-121	12/20/11 17:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1026
Sample Matrix:	Water	**Date Received:**	12/16/11
Sample Name:	LC34-RW0007-038.5-20111215	**Units:**	µg/L
Lab Code:	R1107094-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**46**		5.0	5	NA	12/21/11 10:34		273910	
Ethene	**300**		5.0	5	NA	12/21/11 10:34		273910	
Methane	**1100**		50	25	NA	12/21/11 11:27		273910	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1026
Sample Matrix:	Water	**Date Received:**	12/16/11
		Date Analyzed:	12/28/11 16:26
Sample Name:	LC34-RW0007-038.5-20111215	**Units:**	mg/L
Lab Code:	R1107094-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	274731
Data File Name:	J:\ACQUDATA\HPLC05\DATA\122811\X0007152.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**230**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**130**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	**9.7**		2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1101
Sample Matrix:	Water	**Date Received:**	12/16/11
Sample Name:	LC34-RW0008-052.0-20111215		
Lab Code:	R1107094-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**321**		mg/L	2.0	1	NA	12/20/11 09:10	
Bromide	300.0	**5.3**		mg/L	1.0	10	NA	12/16/11 19:45	
Carbon, Total Organic (TOC), Average	9060A	**56.3**		mg/L	4.0	4	NA	12/17/11 20:35	
Chloride	300.0	**605**		mg/L	20	100	NA	12/22/11 06:07	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	12/29/11 15:29	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	12/16/11 19:45	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	12/16/11 14:30	
Sulfate	300.0	**7.0**		mg/L	2.0	10	NA	12/16/11 19:45	
Sulfide, Total	SM 4500-S2- F	**13.9**		mg/L	1.0	1	NA	12/19/11 15:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1101
Sample Matrix:	Water	**Date Received:**	12/16/11
Sample Name:	LC34-RW0008-052.0-20111215 Dissolved		
Lab Code:	R1107094-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	12/21/11	12/27/11 17:59	
Iron, Dissolved	6010C	100	U	µg/L	100	1	12/21/11	12/27/11 17:59	
Manganese, Dissolved	6010C	**12**		µg/L	10	1	12/21/11	12/27/11 17:59	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1101
Sample Matrix:	Water	**Date Received:**	12/16/11
		Date Analyzed:	12/20/11 18:14
Sample Name:	LC34-RW0008-052.0-20111215	**Units:**	µg/L
Lab Code:	R1107094-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	273536
Data File Name:	J:\ACQUDATA\msvoa10\data\122011\D7138.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	100	U	100	4.7	
79-34-5	1,1,2,2-Tetrachloroethane	100	U	100	4.0	
79-00-5	1,1,2-Trichloroethane	100	U	100	4.7	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1700**		100	6.2	
75-34-3	1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**9.2**	I	100	5.8	
120-82-1	1,2,4-Trichlorobenzene	100	U	100	5.2	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	7.6	
106-93-4	1,2-Dibromoethane	100	U	100	4.0	
95-50-1	1,2-Dichlorobenzene	100	U	100	4.0	
107-06-2	1,2-Dichloroethane	100	U	100	4.0	
78-87-5	1,2-Dichloropropane	100	U	100	5.7	
541-73-1	1,3-Dichlorobenzene	100	U	100	4.0	
106-46-7	1,4-Dichlorobenzene	100	U	100	4.0	
71-36-3	n-Butanol	5000	U	5000	210	
78-93-3	2-Butanone (MEK)	200	U	200	11	
591-78-6	2-Hexanone	200	U	200	7.0	
108-10-1	4-Methyl-2-pentanone	200	U	200	5.4	
67-64-1	Acetone	200	U	200	20	
71-43-2	Benzene	100	U	100	4.2	
75-27-4	Bromodichloromethane	100	U	100	4.0	
75-25-2	Bromoform	100	U	100	5.4	
74-83-9	Bromomethane	100	U	100	6.2	
75-15-0	Carbon Disulfide	200	U	200	4.0	
56-23-5	Carbon Tetrachloride	100	U	100	5.4	
108-90-7	Chlorobenzene	100	U	100	4.0	
75-00-3	Chloroethane	100	U	100	6.2	
67-66-3	Chloroform	100	U	100	4.4	
74-87-3	Chloromethane	100	U	100	4.8	
110-82-7	Cyclohexane	200	U	200	4.8	
124-48-1	Dibromochloromethane	100	U	100	4.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	100	U	100	12	
75-09-2	Dichloromethane	100	U	100	4.4	
100-41-4	Ethylbenzene	100	U	100	4.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1101
Sample Matrix:	Water	**Date Received:**	12/16/11
		Date Analyzed:	12/20/11 18:14
Sample Name:	LC34-RW0008-052.0-20111215	**Units:**	µg/L
Lab Code:	R1107094-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	273536
Data File Name:	J:\ACQUDATA\msvoa10\data\122011\D7138.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	100	U	100	4.0	
79-20-9	Methyl Acetate	200	U	200	4.7	
1634-04-4	Methyl tert-Butyl Ether	100	U	100	4.0	
108-87-2	Methylcyclohexane	200	U	200	5.0	
100-42-5	Styrene	100	U	100	4.0	
127-18-4	Tetrachloroethene (PCE)	100	U	100	4.0	
108-88-3	Toluene	100	U	100	4.0	
79-01-6	Trichloroethene (TCE)	**1500**		100	4.7	
75-69-4	Trichlorofluoromethane (CFC 11)	100	U	100	4.0	
75-01-4	Vinyl Chloride	**820**		100	4.7	
156-59-2	cis-1,2-Dichloroethene	**2300**		100	4.0	
10061-01-5	cis-1,3-Dichloropropene	100	U	100	4.0	
179601-23-1	m,p-Xylenes	100	U	100	4.0	
123-86-4	n-Butyl Acetate	100	U	100	4.2	
95-47-6	o-Xylene	100	U	100	4.0	
156-60-5	trans-1,2-Dichloroethene	**17**	I	100	4.0	
10061-02-6	trans-1,3-Dichloropropene	100	U	100	4.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	12/20/11 18:14	
Dibromofluoromethane	103	89-119	12/20/11 18:14	
Toluene-d8	107	87-121	12/20/11 18:14	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1101
Sample Matrix:	Water	**Date Received:**	12/16/11
Sample Name:	LC34-RW0008-052.0-20111215	**Units:**	µg/L
Lab Code:	R1107094-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**13**		5.0	5	NA	12/21/11 10:58		273910	
Ethene	**270**		5.0	5	NA	12/21/11 10:58		273910	
Methane	**600**		20	10	NA	12/21/11 11:09		273910	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	12/15/11 1101
Sample Matrix:	Water	**Date Received:**	12/16/11
		Date Analyzed:	12/28/11 01:01
Sample Name:	LC34-RW0008-052.0-20111215	**Units:**	mg/L
Lab Code:	R1107094-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	274561
Data File Name:	J:\ACQUDATA\HPLC05\DATA\122711\X0007139.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**120**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**13**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.6**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1107094-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	12/20/11 09:10	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	12/16/11 18:55	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	12/17/11 09:19	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	12/22/11 03:57	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	12/29/11 15:05	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	12/16/11 18:55	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	12/16/11 14:25	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	12/16/11 18:55	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	12/19/11 15:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1107094-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	12/21/11	12/27/11 17:39	
Iron, Dissolved	6010C	100	U	µg/L	100	1	12/21/11	12/27/11 17:39	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	12/21/11	12/27/11 17:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1107094-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	12/21/11	12/27/11 17:44	
Iron, Dissolved	6010C	100	U	µg/L	100	1	12/21/11	12/27/11 17:44	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	12/21/11	12/27/11 17:44	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	12/20/11 11:16
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1113131-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	273536
Data File Name:	J:\ACQUDATA\msvoa10\data\122011\D7124.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	12/20/11 11:16
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1113131-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	273536
Data File Name:	J:\ACQUDATA\msvoa10\data\122011\D7124.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	12/20/11 11:16	
Dibromofluoromethane	102	89-119	12/20/11 11:16	
Toluene-d8	107	87-121	12/20/11 11:16	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	12/21/11 09:34
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1113084-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	273910
Data File Name:	star1369.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	12/27/11 12:33
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1113311-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	274561
Data File Name:	J:\ACQUDATA\HPLC05\DATA\122711\X0007121.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	12/28/11 11:54
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1113359-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	274731
Data File Name:	J:\ACQUDATA\HPLC05\DATA\122811\X0007144.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A 12/15/11
Sample Matrix: Water

Service Request: R1107094
Date Analyzed: 12/19/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1107094-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1107094-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.69	5.7	99	5.76	5.7	101	56 - 138	1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1107094
Project:	ESTCP PED LC34 TR0272A 12/15/11	**Date Analyzed:**	12/16/11 - 12/29/11
Sample Matrix:	Water		

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1107094-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.04	1.00	104	90 - 110
Chloride	300.0	1.99	2.00	100	90 - 110
Iodide	300.0	0.993	1.00	99	90 - 110
Nitrate as Nitrogen	300.0	1.05	1.00	105	90 - 110
Nitrite as Nitrogen	353.2	0.241	0.250	96	90 - 110
Sulfate	300.0	2.10	2.00	105	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	20.0	20.0	100	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.86	10.0	99	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A 12/15/11
Sample Matrix: Water

Service Request: R1107094
Date Analyzed: 12/27/11

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Lab Control Sample
R1107094-LCS

Analyte Name	Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	36.9	40	92	80 - 120
Iron, Dissolved	6010C	982	1000	98	80 - 120
Manganese, Dissolved	6010C	485	500	97	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A 12/15/11
Sample Matrix: Water

Service Request: R1107094
Date Analyzed: 12/20/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 273536

Analyte Name	Lab Control Sample RQ1113131-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	14.8	20.0	74	72 - 128
1,1,2,2-Tetrachloroethane	20.2	20.0	101	72 - 131
1,1,2-Trichloroethane	17.8	20.0	89	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	14.0	20.0	70	68 - 136
1,1-Dichloroethane (1,1-DCA)	16.6	20.0	83	76 - 124
1,1-Dichloroethene (1,1-DCE)	14.9	20.0	75	72 - 129
1,2,4-Trichlorobenzene	19.3	20.0	96	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.1	20.0	85	62 - 131
1,2-Dibromoethane	17.9	20.0	89	78 - 125
1,2-Dichlorobenzene	18.8	20.0	94	79 - 124
1,2-Dichloroethane	20.1	20.0	100	73 - 127
1,2-Dichloropropane	18.3	20.0	92	80 - 123
1,3-Dichlorobenzene	18.3	20.0	92	78 - 124
1,4-Dichlorobenzene	19.0	20.0	95	78 - 123
n-Butanol	905	1000	90	70 - 130
2-Butanone (MEK)	19.3	20.0	97	60 - 133
2-Hexanone	21.1	20.0	106	61 - 131
4-Methyl-2-pentanone	19.5	20.0	98	61 - 132
Acetone	19.9	20.0	99	54 - 139
Benzene	17.4	20.0	87	78 - 121
Bromodichloromethane	18.1	20.0	90	80 - 125
Bromoform	17.8	20.0	89	68 - 130
Bromomethane	18.8	20.0	94	57 - 144
Carbon Disulfide	19.0	20.0	95	52 - 140
Carbon Tetrachloride	15.5	20.0	78	68 - 133
Chlorobenzene	17.2	20.0	86	80 - 121
Chloroethane	16.8	20.0	84	71 - 130
Chloroform	16.6	20.0	83	78 - 125
Chloromethane	19.6	20.0	98	61 - 138
Cyclohexane	22.6	20.0	113	57 - 126
Dibromochloromethane	17.6	20.0	88	78 - 133
Dichlorodifluoromethane (CFC 12)	15.6	20.0	78	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A 12/15/11
Sample Matrix: Water

Service Request: R1107094
Date Analyzed: 12/20/11

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 273536

Analyte Name	Lab Control Sample RQ1113131-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	16.7	20.0	83	75 - 125
Ethylbenzene	16.3	20.0	81	78 - 123
Isopropylbenzene (Cumene)	18.7	20.0	94	73 - 133
Methyl Acetate	23.0	20.0	115	57 - 157
Methyl tert-Butyl Ether	16.9	20.0	84	75 - 126
Methylcyclohexane	19.8	20.0	99	61 - 125
Styrene	17.2	20.0	86	80 - 132
Tetrachloroethene (PCE)	17.6	20.0	88	72 - 131
Toluene	17.4	20.0	87	78 - 122
Trichloroethene (TCE)	15.8	20.0	79	74 - 127
Trichlorofluoromethane (CFC 11)	14.9	20.0	75	69 - 141
Vinyl Chloride	17.0	20.0	85	72 - 138
cis-1,2-Dichloroethene	16.4	20.0	82	78 - 122
cis-1,3-Dichloropropene	17.1	20.0	85	77 - 125
m,p-Xylenes	34.4	40.0	86	79 - 126
n-Butyl Acetate	21.3	20.0	107	31 - 144
o-Xylene	16.7	20.0	83	77 - 118
trans-1,2-Dichloroethene	15.1	20.0	76	75 - 121
trans-1,3-Dichloropropene	16.8	20.0	84	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A 12/15/11
Sample Matrix: Water

Service Request: R1107094
Date Analyzed: 12/21/11

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 273910

	Lab Control Sample RQ1113084-02			Duplicate Lab Control Sample RQ1113084-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	29.2	26.0	112	27.4	26.0	105	56 - 148	7	30
Ethene	25.0	24.3	103	23.5	24.3	97	58 - 155	6	30
Methane	29.6	26.2	113	27.8	26.2	106	55 - 150	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A 12/15/11
Sample Matrix: Water

Service Request: R1107094
Date Analyzed: 12/27/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 274561

	Lab Control Sample RQ1113311-02			Duplicate Lab Control Sample RQ1113311-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	0.900	1.00	90	0.930	1.00	93	70 - 130	3	30
Acetic Acid	9.79	10.0	98	9.78	10.0	98	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	8.77	10.0	88	10.5	10.0	105	78 - 113	18	30
Lactic Acid	9.10	9.97	91	9.04	9.97	91	61 - 109	<1	30
Propionic Acid	8.23	9.97	83	8.85	9.97	89	80 - 125	7	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A 12/15/11
Sample Matrix: Water

Service Request: R1107094
Date Analyzed: 12/28/11

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 274731

	Lab Control Sample RQ1113359-02			Duplicate Lab Control Sample RQ1113359-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	0.950	1.00	95	0.930	1.00	93	70 - 130	2	30
Acetic Acid	10.1	10.0	101	10.1	10.0	101	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	8.62	10.0	86	8.98	10.0	90	78 - 113	4	30
Lactic Acid	9.18	9.97	92	9.27	9.97	93	61 - 109	<1	30
Propionic Acid	9.41	9.97	94	9.08	9.97	91	80 - 125	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20111215	12/15/11	1026	-001, -002	W	14/15	JB/2	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20111215	12/15/11	1101	-003, -004	W	15	3	2	1	3	1	3	1	1		
~~LC34-TB-2011~~ JB															

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

R1107094

R1107094
GeoSyntec Consultants
ESTCP PED LC34 TR0272A 12/15/11

RELINQUISHED BY:

Signature:

Printed Name: Joseph Bartlett

Firm: Geosyntec Consultants

Date/Time: 12/15/11 – 1630

RECEIVED BY:

Signature:

Printed Name: FEDEX

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Amy Hentschke

Firm: CAS

Date/Time: 12/16/11 1020

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1070944

Cooler received on 12/16/11 by: Ahlt **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	1.2°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 12/16/11 1029

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 12/16/11

Cooler Breakdown: Date: 12/16/11 Time: 1243 by: (AH)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC103138C	8/12				
≤2	HNO_3								
≤2	H_2SO_4			WC103138D	8/12				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC103098C	5/12				
	HCl	*	*	4111010	9/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

1-132-001

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 091911-2LL, 072511-2DD, ~~1-194-002~~, 1-187-002

Other Comments:

PC Secondary Review: KB 1/4/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services™ 1565 Jefferson Rd, Building 300, Suite 360 | Rochester, NY 14623 | 585-288-5380 | 585-288-8475 fax |

January 23, 2012 Service Request No: R1200102

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 TR0272A

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on January 6, 2012. For your reference, these analyses have been assigned our service request number **R1200102**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1200102
Project:	ESTCP PED LC34/ TR0272 1/5/12	**Date Received:**	1/6/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples and one (1) Trip Blank were collected by the client on 1/5/12 and were received for analysis at Columbia Analytical Services on 1/6/12 via a national courier. The samples were received at a cooler temperature of 3.6°C within the guidelines of 0-6°C. Sample vials received from CAS were preserved with HCL. The client triple rinsed the vials prior to sampling.

Organic Compounds

Two (2) water samples and one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) samples were also analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial Calibration Criteria was met for all samples for 8260C. The Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Cyclohexane on 1/9/12. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD), (RSK & Organic Acids) recoveries were all within QC limits except for Cyclohexane which was outside limits high on the 1/9/12 and 1/12/12 runs. The exceedences are flagged as "*". All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0 The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Approved by Dawn Burke **Date** 1/23/12

Batch QC is included in the report. All LCS and LCSD (Sulfide) recoveries were within QC limits.

All samples were analyzed within holding times for these analyses.

All Laboratory Method Blanks were free from contamination.

No other problems were encountered during the analysis of these samples.

Approved by Karen Burke Date 1/23/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1200102

Lab ID	Client ID
R1200102-001	LC34-RW0007-038.5-20120105
R1200102-002	LC34-RW0007-038.5-20120105 Dissolved
R1200102-003	LC34-RW0008-052.0-20120105
R1200102-004	LC34-RW0008-052.0-20120105 Dissolved
R1200102-005	LC34-TB-20120105

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 0959
Sample Matrix:	Water	**Date Received:**	1/ 6/12
Sample Name:	LC34-RW0007-038.5-20120105		
Lab Code:	R1200102-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**460**		mg/L	2.0	1	NA	1/9/12 12:30	
Bromide	300.0	**7.3**		mg/L	1.0	10	NA	1/6/12 12:59	
Carbon, Total Organic (TOC), Average	9060A	**153**		mg/L	10	10	NA	1/10/12 15:41	
Chloride	300.0	**199**		mg/L	10	50	NA	1/9/12 16:03	
Iodide	300.0	**12.4**		mg/L	2.0	10	NA	1/19/12 16:04	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	1/6/12 12:59	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	1/6/12 12:26	
Sulfate	300.0	**3.7**		mg/L	2.0	10	NA	1/6/12 12:59	
Sulfide, Total	SM 4500-S2- F	**13.5**		mg/L	1.0	1	NA	1/6/12 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 0959
Sample Matrix:	Water	**Date Received:**	1/ 6/12
Sample Name:	LC34-RW0007-038.5-20120105 Dissolved		
Lab Code:	R1200102-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/ 9/12	1/10/12 19:54	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/ 9/12	1/10/12 19:54	
Manganese, Dissolved	6010C	**19**		µg/L	10	1	1/ 9/12	1/10/12 19:54	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 0959
Sample Matrix:	Water	**Date Received:**	1/ 6/12
		Date Analyzed:	1/12/12 13:24
Sample Name:	LC34-RW0007-038.5-20120105	**Units:**	µg/L
Lab Code:	R1200102-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	276160
Data File Name:	J:\ACQUDATA\msvoa10\data\011212\D7590.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**2600**		250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	500	U	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	500	U	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 0959
Sample Matrix:	Water	**Date Received:**	1/ 6/12
		Date Analyzed:	1/12/12 13:24
Sample Name:	LC34-RW0007-038.5-20120105	**Units:**	µg/L
Lab Code:	R1200102-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	276160
Data File Name:	J:\ACQUDATA\msvoa10\data\011212\D7590.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**160**	I	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**6200**		250	12	
156-59-2	cis-1,2-Dichloroethene	**4500**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	250	U	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**200**	I	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	1/12/12 13:24	
Dibromofluoromethane	102	89-119	1/12/12 13:24	
Toluene-d8	104	87-121	1/12/12 13:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 0959
Sample Matrix:	Water	**Date Received:**	1/ 6/12
Sample Name:	LC34-RW0007-038.5-20120105	**Units:**	µg/L
Lab Code:	R1200102-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**30**		5.0	5	NA	1/10/12 09:48		275796	
Ethene	**740**		50	50	NA	1/10/12 10:33		275796	
Methane	**3200**		100	50	NA	1/10/12 10:33		275796	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 0959
Sample Matrix:	Water	**Date Received:**	1/ 6/12
		Date Analyzed:	1/12/12 03:30
Sample Name:	LC34-RW0007-038.5-20120105	**Units:**	mg/L
Lab Code:	R1200102-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	276105
Data File Name:	J:\ACQUDATA\HPLC05\DATA\011112\X0007254.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**220**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**54**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**8.9**		5.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Collected: 1/ 5/12 1041
Date Received: 1/ 6/12

Sample Name: LC34-RW0008-052.0-20120105
Lab Code: R1200102-003

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**314**		mg/L	2.0	1	NA	1/9/12 12:30	
Bromide	300.0	**4.5**		mg/L	1.0	10	NA	1/6/12 13:15	
Carbon, Total Organic (TOC), Average	9060A	**50.9**		mg/L	4.0	4	NA	1/10/12 16:21	
Chloride	300.0	**679**		mg/L	20	100	NA	1/9/12 19:56	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	1/19/12 16:12	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	1/6/12 13:15	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	1/6/12 12:29	
Sulfate	300.0	**3.9**		mg/L	2.0	10	NA	1/6/12 13:15	
Sulfide, Total	SM 4500-S2- F	**13.5**		mg/L	1.0	1	NA	1/6/12 11:00	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 1041
Sample Matrix:	Water	**Date Received:**	1/ 6/12
Sample Name:	LC34-RW0008-052.0-20120105 Dissolved		
Lab Code:	R1200102-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/ 9/12	1/10/12 19:58	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/ 9/12	1/10/12 19:58	
Manganese, Dissolved	6010C	15		µg/L	10	1	1/ 9/12	1/10/12 19:58	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 1041
Sample Matrix:	Water	**Date Received:**	1/ 6/12
		Date Analyzed:	1/9/12 17:28
Sample Name:	LC34-RW0008-052.0-20120105	**Units:**	µg/L
Lab Code:	R1200102-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	275740
Data File Name:	J:\ACQUDATA\msvoa10\data\010912\D7548.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1300**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**5.4**	I	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	100	U	100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 1041
Sample Matrix:	Water	**Date Received:**	1/ 6/12
		Date Analyzed:	1/9/12 17:28
Sample Name:	LC34-RW0008-052.0-20120105	**Units:**	µg/L
Lab Code:	R1200102-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	275740
Data File Name:	J:\ACQUDATA\msvoa10\data\010912\D7548.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**1100**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**560**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1400**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**12**	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	1/9/12 17:28	
Dibromofluoromethane	106	89-119	1/9/12 17:28	
Toluene-d8	106	87-121	1/9/12 17:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 1041
Sample Matrix:	Water	**Date Received:**	1/ 6/12
Sample Name:	LC34-RW0008-052.0-20120105	**Units:**	µg/L
Lab Code:	R1200102-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**13**		5.0	5	NA	1/10/12 09:58		275796	
Ethene	**320**		5.0	5	NA	1/10/12 09:58		275796	
Methane	**670**		20	10	NA	1/10/12 10:10		275796	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12 1041
Sample Matrix:	Water	**Date Received:**	1/ 6/12
Sample Name:	LC34-RW0008-052.0-20120105	**Units:**	mg/L
Lab Code:	R1200102-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Pyruvic Acid	0.50	U	0.50	1	NA	1/17/12 02:39		276606	
Acetic Acid	**96**		1.0	1	NA	1/17/12 02:39		276606	
Butanoic Acid (Butyric Acid)	**8.5**		2.0	1	NA	1/17/12 02:39		276606	
Lactic Acid	1.0	U	1.0	1	NA	1/17/12 02:39		276606	
Propionic Acid	**1.4**		1.0	1	NA	1/17/12 02:39		276606	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12
Sample Matrix:	Water	**Date Received:**	1/ 6/12
		Date Analyzed:	1/9/12 16:28
Sample Name:	LC34-TB-20120105	**Units:**	µg/L
Lab Code:	R1200102-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	275740
Data File Name:	J:\ACQUDATA\msvoa10\data\010912\D7546.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	1/ 5/12
Sample Matrix:	Water	**Date Received:**	1/ 6/12
		Date Analyzed:	1/9/12 16:28
Sample Name:	LC34-TB-20120105	**Units:**	µg/L
Lab Code:	R1200102-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	275740
Data File Name:	J:\ACQUDATA\msvoa10\data\010912\D7546.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	1/9/12 16:28	
Dibromofluoromethane	105	89-119	1/9/12 16:28	
Toluene-d8	104	87-121	1/9/12 16:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1200102-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	1/9/12 12:30	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	1/6/12 11:22	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	1/10/12 13:41	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	1/9/12 15:10	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	1/19/12 15:47	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	1/6/12 11:22	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	1/6/12 12:25	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	1/6/12 11:22	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	1/6/12 11:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1200102-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/ 9/12	1/10/12 17:25	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/ 9/12	1/10/12 17:25	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	1/ 9/12	1/10/12 17:25	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1200102-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/ 9/12	1/10/12 17:29	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/ 9/12	1/10/12 17:29	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	1/ 9/12	1/10/12 17:29	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/9/12 11:18
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1200294-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	275740
Data File Name:	J:\ACQUDATA\msvoa10\data\010912\D7536.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/9/12 11:18
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1200294-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	275740
Data File Name:	J:\ACQUDATA\msvoa10\data\010912\D7536.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	1/9/12 11:18	
Dibromofluoromethane	104	89-119	1/9/12 11:18	
Toluene-d8	105	87-121	1/9/12 11:18	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/12/12 12:17
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1200440-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	276160
Data File Name:	J:\ACQUDATA\msvoa10\data\011212\D7588.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/12/12 12:17
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1200440-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	276160
Data File Name:	J:\ACQUDATA\msvoa10\data\011212\D7588.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	1/12/12 12:17	
Dibromofluoromethane	101	89-119	1/12/12 12:17	
Toluene-d8	104	87-121	1/12/12 12:17	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1200215-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	1/10/12 09:13		275796	
Ethene	1.0	U	1.0	1	NA	1/10/12 09:13		275796	
Methane	2.0	U	2.0	1	NA	1/10/12 09:13		275796	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1200302-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Pyruvic Acid	0.50	U	0.50	1	NA	1/12/12 01:25		276105	
Acetic Acid	1.0	U	1.0	1	NA	1/12/12 01:25		276105	
Butanoic Acid (Butyric Acid)	2.0	U	2.0	1	NA	1/12/12 01:25		276105	
Lactic Acid	1.0	U	1.0	1	NA	1/12/12 01:25		276105	
Propionic Acid	1.0	U	1.0	1	NA	1/12/12 01:25		276105	

Client:	GeoSyntec Consultants	**Service Request:**	R1200102
Project:	ESTCP PED LC34 TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1200438-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Pyruvic Acid	0.50	U	0.50	1	NA	1/16/12 10:43		276606	
Acetic Acid	1.0	U	1.0	1	NA	1/16/12 10:43		276606	
Butanoic Acid (Butyric Acid)	2.0	U	2.0	1	NA	1/16/12 10:43		276606	
Lactic Acid	1.0	U	1.0	1	NA	1/16/12 10:43		276606	
Propionic Acid	1.0	U	1.0	1	NA	1/16/12 10:43		276606	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/ 6/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1200102-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1200102-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.70	5.5	105	5.68	5.5	104	56 - 138	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/ 6/12 - 1/19/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1200102-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.994	1.00	99	90 - 110
Chloride	300.0	2.04	2.00	102	90 - 110
Iodide	300.0	1.02	1.00	102	90 - 110
Nitrate as Nitrogen	300.0	1.00	1.00	100	90 - 110
Nitrite as Nitrogen	353.2	0.239	0.250	96	90 - 110
Sulfate	300.0	1.92	2.00	96	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	21.0	20.0	105	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.98	10.0	100	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/10/12

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1200102-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	37.1	40	93	80 - 120
Iron, Dissolved	6010C	979	1000	98	80 - 120
Manganese, Dissolved	6010C	487	500	97	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/ 9/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 275740

Analyte Name	Lab Control Sample RQ1200294-02 Result	Spike Amount	% Rec		% Rec Limits
1,1,1-Trichloroethane (TCA)	17.2	20.0	86		72 - 128
1,1,2,2-Tetrachloroethane	18.5	20.0	93		72 - 131
1,1,2-Trichloroethane	20.0	20.0	100		80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.7	20.0	89		68 - 136
1,1-Dichloroethane (1,1-DCA)	18.1	20.0	90		76 - 124
1,1-Dichloroethene (1,1-DCE)	17.2	20.0	86		72 - 129
1,2,4-Trichlorobenzene	21.3	20.0	106		70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.4	20.0	87		62 - 131
1,2-Dibromoethane	19.8	20.0	99		78 - 125
1,2-Dichlorobenzene	20.6	20.0	103		79 - 124
1,2-Dichloroethane	22.5	20.0	113		73 - 127
1,2-Dichloropropane	19.7	20.0	98		80 - 123
1,3-Dichlorobenzene	20.3	20.0	102		78 - 124
1,4-Dichlorobenzene	20.5	20.0	103		78 - 123
n-Butanol	838	1000	83		70 - 130
2-Butanone (MEK)	18.1	20.0	90		60 - 133
2-Hexanone	20.5	20.0	102		61 - 131
4-Methyl-2-pentanone	19.2	20.0	96		61 - 132
Acetone	19.0	20.0	95		54 - 139
Benzene	20.2	20.0	101		78 - 121
Bromodichloromethane	20.1	20.0	100		80 - 125
Bromoform	21.3	20.0	106		68 - 130
Bromomethane	23.9	20.0	119		57 - 144
Carbon Disulfide	18.0	20.0	90		52 - 140
Carbon Tetrachloride	20.0	20.0	100		68 - 133
Chlorobenzene	20.5	20.0	103		80 - 121
Chloroethane	18.3	20.0	91		71 - 130
Chloroform	18.5	20.0	93		78 - 125
Chloromethane	22.2	20.0	111		61 - 138
Cyclohexane	26.8	20.0	134	*	57 - 126
Dibromochloromethane	20.3	20.0	101		78 - 133
Dichlorodifluoromethane (CFC 12)	17.2	20.0	86		45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/ 9/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 275740

Analyte Name	Lab Control Sample RQ1200294-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	17.9	20.0	90	75 - 125
Ethylbenzene	19.8	20.0	99	78 - 123
Isopropylbenzene (Cumene)	22.5	20.0	112	73 - 133
Methyl Acetate	21.9	20.0	109	57 - 157
Methyl tert-Butyl Ether	16.9	20.0	84	75 - 126
Methylcyclohexane	22.0	20.0	110	61 - 125
Styrene	19.3	20.0	96	80 - 132
Tetrachloroethene (PCE)	22.8	20.0	114	72 - 131
Toluene	20.3	20.0	102	78 - 122
Trichloroethene (TCE)	19.9	20.0	99	74 - 127
Trichlorofluoromethane (CFC 11)	18.6	20.0	93	69 - 141
Vinyl Chloride	18.8	20.0	94	72 - 138
cis-1,2-Dichloroethene	18.1	20.0	90	78 - 122
cis-1,3-Dichloropropene	18.4	20.0	92	77 - 125
m,p-Xylenes	40.5	40.0	101	79 - 126
n-Butyl Acetate	20.1	20.0	100	31 - 144
o-Xylene	19.7	20.0	98	77 - 118
trans-1,2-Dichloroethene	17.8	20.0	89	75 - 121
trans-1,3-Dichloropropene	18.1	20.0	90	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/12/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 276160

Analyte Name	Lab Control Sample RQ1200440-02 Result	Spike Amount	% Rec		% Rec Limits
1,1,1-Trichloroethane (TCA)	17.7	20.0	88		72 - 128
1,1,2,2-Tetrachloroethane	19.6	20.0	98		72 - 131
1,1,2-Trichloroethane	20.4	20.0	102		80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.1	20.0	96		68 - 136
1,1-Dichloroethane (1,1-DCA)	19.8	20.0	99		76 - 124
1,1-Dichloroethene (1,1-DCE)	18.5	20.0	92		72 - 129
1,2,4-Trichlorobenzene	22.4	20.0	112		70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.7	20.0	89		62 - 131
1,2-Dibromoethane	20.8	20.0	104		78 - 125
1,2-Dichlorobenzene	20.7	20.0	103		79 - 124
1,2-Dichloroethane	21.6	20.0	108		73 - 127
1,2-Dichloropropane	20.7	20.0	104		80 - 123
1,3-Dichlorobenzene	20.4	20.0	102		78 - 124
1,4-Dichlorobenzene	21.0	20.0	105		78 - 123
n-Butanol	860	1000	86		70 - 130
2-Butanone (MEK)	18.8	20.0	94		60 - 133
2-Hexanone	19.3	20.0	97		61 - 131
4-Methyl-2-pentanone	18.5	20.0	92		61 - 132
Acetone	17.4	20.0	87		54 - 139
Benzene	21.3	20.0	106		78 - 121
Bromodichloromethane	19.8	20.0	99		80 - 125
Bromoform	20.5	20.0	103		68 - 130
Bromomethane	23.8	20.0	119		57 - 144
Carbon Disulfide	18.9	20.0	94		52 - 140
Carbon Tetrachloride	18.8	20.0	94		68 - 133
Chlorobenzene	21.4	20.0	107		80 - 121
Chloroethane	18.9	20.0	94		71 - 130
Chloroform	19.1	20.0	95		78 - 125
Chloromethane	22.3	20.0	111		61 - 138
Cyclohexane	25.7	20.0	129	*	57 - 126
Dibromochloromethane	20.0	20.0	100		78 - 133
Dichlorodifluoromethane (CFC 12)	16.9	20.0	85		45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/12/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 276160

Analyte Name	Lab Control Sample RQ1200440-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.0	20.0	100	75 - 125
Ethylbenzene	20.9	20.0	105	78 - 123
Isopropylbenzene (Cumene)	23.0	20.0	115	73 - 133
Methyl Acetate	22.3	20.0	112	57 - 157
Methyl tert-Butyl Ether	18.0	20.0	90	75 - 126
Methylcyclohexane	21.1	20.0	106	61 - 125
Styrene	19.8	20.0	99	80 - 132
Tetrachloroethene (PCE)	23.3	20.0	116	72 - 131
Toluene	21.0	20.0	105	78 - 122
Trichloroethene (TCE)	20.6	20.0	103	74 - 127
Trichlorofluoromethane (CFC 11)	18.7	20.0	93	69 - 141
Vinyl Chloride	19.7	20.0	98	72 - 138
cis-1,2-Dichloroethene	19.7	20.0	99	78 - 122
cis-1,3-Dichloropropene	19.1	20.0	95	77 - 125
m,p-Xylenes	42.4	40.0	106	79 - 126
n-Butyl Acetate	19.4	20.0	97	31 - 144
o-Xylene	20.3	20.0	101	77 - 118
trans-1,2-Dichloroethene	19.2	20.0	96	75 - 121
trans-1,3-Dichloropropene	18.5	20.0	93	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/10/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 275796

	Lab Control Sample RQ1200215-02			Duplicate Lab Control Sample RQ1200215-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	26.1	26.0	100	24.7	26.0	95	56 - 148	6	30
Ethene	22.3	24.3	92	21.2	24.3	87	58 - 155	5	30
Methane	26.6	26.2	101	25.2	26.2	96	55 - 150	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/12/12

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 276105

	Lab Control Sample RQ1200302-02			Duplicate Lab Control Sample RQ1200302-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	0.820	0.991	83	0.810	0.991	82	70 - 130	1	30
Acetic Acid	8.53	10.3	83	8.78	10.3	86	70 - 135	3	30
Butanoic Acid (Butyric Acid)	9.41	10.1	93	9.19	10.1	91	78 - 113	2	30
Lactic Acid	8.61	10.0	86	8.66	10.0	87	61 - 109	<1	30
Propionic Acid	8.33	9.93	84	8.54	9.93	86	80 - 125	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 TR0272A
Sample Matrix: Water

Service Request: R1200102
Date Analyzed: 1/16/12

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 276606

	Lab Control Sample RQ1200438-02			Duplicate Lab Control Sample RQ1200438-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	0.880	0.991	89	0.900	0.991	91	70 - 130	2	30
Acetic Acid	9.82	10.3	96	9.90	10.3	97	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	9.55	10.1	94	9.83	10.1	97	78 - 113	3	30
Lactic Acid	9.68	10.0	97	9.71	10.0	97	61 - 109	<1	30
Propionic Acid	9.03	9.93	91	9.77	9.93	98	80 - 125	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature: JB Bartlett

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20120105	1/5/12	0959	001, 002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20120105	1/5/12	1041	003, 004	W	15	3	2	1	3	1	3	1	1		
LC34-TB-20120105	NA	NA	-005												

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

- Please filter dissolved metals in lab.

- VOC (8260C) plus nBA sample bottles triple rinsed in field to remove preservative (HCl).

Invoice Information

P.O. #

Bill to: TR0272A

R1200102
GeoSyntec Consultants
ESTCP PED LC34 TR0272A

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: JB Bartlett	Signature:	Signature:	Signature:
Printed Name: JOSEPH BARTLETT	Printed Name:	Printed Name:	Printed Name: JAMES A KEWLEY
Firm: GEOSYNTEC CONSULTANTS	Firm: FED EX	Firm:	Firm: ALS
Date/Time: 1/5/12 - 1630	Date/Time:	Date/Time:	Date/Time: 1/6/12 1000

Cooler Receipt And Preservation Check Form

Project/Client Geosyntec Folder Number R1200102

Cooler received on 1/6/12 by: JH **COURIER:** CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO) N/A
5.	Were **Ice** or **Ice packs** present?	(YES)	NO
6.	Where did the bottles originate?	(CAS/ROC,)	CLIENT

7.	Temperature of cooler(s) upon receipt:	3.6				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 1/6/12 1008

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 1/6/12

Cooler Breakdown: Date: 1/6/12 Time: 1131 by: DM

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC1031436	11/12				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	411 1010	12/12				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-194-001, 1-194-002, VO250211

Other Comments:

PC Secondary Review: KB 1/23/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

February 13, 2012 Service Request No: R1200577

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 1/26/12

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on January 27, 2012. For your reference, these analyses have been assigned our service request number **R1200577**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

00001

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1200577

Lab ID	Client ID
R1200577-001	LC34-RW0007-038.5-20120126
R1200577-002	LC34-RW0007-038.5-20120126 Dissolved
R1200577-003	LC34-RW0008-052.0-20120126
R1200577-004	LC34-RW0008-052.0-20120126 Dissolved
R1200577-005	LC34-TB-20120126

Client:	Geosyntec Consultants	**Service Request No.:**	R1200577
Project:	ESTCP PED LC34/ TR0272 1/26/12	**Date Received:**	1/27/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples and one (1) Trip Blank were collected by the client on 1/26/12 and were received for analysis at Columbia Analytical Services on 1/27/12 via a national courier. The samples were received at a cooler temperature of 3.5°C within the guidelines of 0-6°C.

Organic Compounds

Two (2) water samples and one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C. Two (2) samples were also analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial Calibration Criteria was met for all samples for 8260C. The Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Carbon Disulfide on the 1/30/12 analytical run and n-Butanol, Bromoform, Dibromochloromethane and n-butyl acetate on the 2/1/12 run. All detected concentrations for these compound in samples associated with these CCV's should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicates (LCSD for Organic Acids only) recoveries were all within QC limits. The Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Two (2) water samples were analyzed for Bromide and Iodide by IC method 300.0, dissolved ICP Metals, TOC by method 9060A, Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Anions: Chloride, Nitrate, Nitrite, and Sulfate by IC method 300.0 The soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Approved by Karen Barlow Date 2/14/12

Batch QC is included in the report. All LCS and LCSD (Sulfide) recoveries were within QC limits.

All samples were analyzed within holding times for these analyses.

All Laboratory Method Blanks were free from contamination.

No other problems were encountered during the analysis of these samples.

Approved by Raven Beeler Date 2/14/12

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Collected: 1/26/12 1017
Date Received: 1/27/12

Sample Name: LC34-RW0007-038.5-20120126
Lab Code: R1200577-001

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**368**		mg/L	2.0	1	NA	2/7/12 09:45	
Bromide	300.0	**7.8**		mg/L	1.0	10	NA	1/27/12 12:43	
Carbon, Total Organic (TOC), Average	9060A	**113**		mg/L	10	10	NA	1/31/12 17:41	
Chloride	300.0	**431**		mg/L	20	100	NA	1/27/12 14:40	
Iodide	300.0	**7.9**		mg/L	2.0	10	NA	2/9/12 14:59	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	1/27/12 12:43	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	1/27/12 11:56	
Sulfate	300.0	**2.2**		mg/L	2.0	10	NA	1/27/12 12:43	
Sulfide, Total	SM 4500-S2- F	**15.0**		mg/L	1.0	1	NA	1/31/12 13:00	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Collected: 1/26/12 1017
Date Received: 1/27/12

Sample Name: LC34-RW0007-038.5-20120126 Dissolved
Lab Code: R1200577-002

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/31/12	2/2/12 01:23	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/31/12	2/2/12 01:23	
Manganese, Dissolved	6010C	25		µg/L	10	1	1/31/12	2/2/12 01:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1017
Sample Matrix:	Water	**Date Received:**	1/27/12
Sample Name:	LC34-RW0007-038.5-20120126	**Units:**	µg/L
Lab Code:	R1200577-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	1/30/12 14:46		278113	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	1/30/12 14:46		278113	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		500	31	100	NA	2/1/12 17:45		278439	
1,1-Dichloroethane (1,1-DCA)	**0.68**	i	5.0	0.20	1	NA	1/30/12 14:46		278113	
1,1-Dichloroethene (1,1-DCE)	**48**		5.0	0.29	1	NA	1/30/12 14:46		278113	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	1/30/12 14:46		278113	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	1/30/12 14:46		278113	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	1/30/12 14:46		278113	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
n-Butanol	250	U	250	11	1	NA	1/30/12 14:46		278113	
2-Butanone (MEK)	10	U	10	0.51	1	NA	1/30/12 14:46		278113	
2-Hexanone	10	U	10	0.35	1	NA	1/30/12 14:46		278113	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	1/30/12 14:46		278113	
Acetone	10	U	10	0.98	1	NA	1/30/12 14:46		278113	
Benzene	5.0	U	5.0	0.21	1	NA	1/30/12 14:46		278113	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Bromoform	5.0	U	5.0	0.27	1	NA	1/30/12 14:46		278113	
Bromomethane	5.0	U	5.0	0.31	1	NA	1/30/12 14:46		278113	
Carbon Disulfide	**30**		10	0.20	1	NA	1/30/12 14:46		278113	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	1/30/12 14:46		278113	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Chloroethane	5.0	U	5.0	0.31	1	NA	1/30/12 14:46		278113	
Chloroform	5.0	U	5.0	0.22	1	NA	1/30/12 14:46		278113	
Chloromethane	5.0	U	5.0	0.24	1	NA	1/30/12 14:46		278113	
Cyclohexane	10	U	10	0.24	1	NA	1/30/12 14:46		278113	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	1/30/12 14:46		278113	
Dichloromethane	5.0	U	5.0	0.22	1	NA	1/30/12 14:46		278113	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Methyl Acetate	10	U	10	0.23	1	NA	1/30/12 14:46		278113	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1017
Sample Matrix:	Water	**Date Received:**	1/27/12
Sample Name:	LC34-RW0007-038.5-20120126	**Units:**	µg/L
Lab Code:	R1200577-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Methylcyclohexane	10	U	10	0.25	1	NA	1/30/12 14:46		278113	
Styrene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Toluene	**0.39**	i	5.0	0.20	1	NA	1/30/12 14:46		278113	
Trichloroethene (TCE)	**1700**		500	23	100	NA	2/1/12 17:45		278439	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
Vinyl Chloride	**10000**		500	23	100	NA	2/1/12 17:45		278439	
cis-1,2-Dichloroethene	**15000**		500	20	100	NA	2/1/12 17:45		278439	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	1/30/12 14:46		278113	
o-Xylene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	
trans-1,2-Dichloroethene	**250**	i	500	20	100	NA	2/1/12 17:45		278439	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	1/30/12 14:46		278113	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	1/30/12 14:46	
Dibromofluoromethane	103	89-119	1/30/12 14:46	
Toluene-d8	102	87-121	1/30/12 14:46	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1017
Sample Matrix:	Water	**Date Received:**	1/27/12
Sample Name:	LC34-RW0007-038.5-20120126	**Units:**	µg/L
Lab Code:	R1200577-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**45**		5.0	5	NA	1/30/12 13:41		278057	
Ethene	**480**		5.0	5	NA	1/30/12 13:41		278057	
Methane	**1300**		50	25	NA	1/30/12 14:07		278057	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1017
Sample Matrix:	Water	**Date Received:**	1/27/12
		Date Analyzed:	1/30/12 19:18
Sample Name:	LC34-RW0007-038.5-20120126	**Units:**	mg/L
Lab Code:	R1200577-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	278167
Data File Name:	J:\ACQUDATA\HPLC05\DATA\013012\X0007394.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**170**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**50**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**5.3**		5.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Collected: 1/26/12 1100
Date Received: 1/27/12

Sample Name: LC34-RW0008-052.0-20120126
Lab Code: R1200577-003

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**288**		mg/L	2.0	1	NA	2/7/12 09:45	
Bromide	300.0	**4.8**		mg/L	1.0	10	NA	1/27/12 12:59	
Carbon, Total Organic (TOC), Average	9060A	**48.3**		mg/L	4.0	4	NA	1/31/12 19:43	
Chloride	300.0	**622**		mg/L	20	100	NA	1/27/12 15:59	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/9/12 15:08	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	1/27/12 12:59	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	1/27/12 11:59	
Sulfate	300.0	**3.5**		mg/L	2.0	10	NA	1/27/12 12:59	
Sulfide, Total	SM 4500-S2- F	**13.3**		mg/L	1.0	1	NA	1/31/12 13:00	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Collected: 1/26/12 1100
Date Received: 1/27/12

Sample Name: LC34-RW0008-052.0-20120126 Dissolved
Lab Code: R1200577-004

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/31/12	2/2/12 01:28	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/31/12	2/2/12 01:28	
Manganese, Dissolved	6010C	15		µg/L	10	1	1/31/12	2/2/12 01:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1100
Sample Matrix:	Water	**Date Received:**	1/27/12
Sample Name:	LC34-RW0008-052.0-20120126	**Units:**	µg/L
Lab Code:	R1200577-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	50	U	50	2.4	10	NA	1/30/12 19:56		278113	
1,1,2,2-Tetrachloroethane	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
1,1,2-Trichloroethane	50	U	50	2.4	10	NA	1/30/12 19:56		278113	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1600**		50	3.1	10	NA	1/30/12 19:56		278113	
1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
1,1-Dichloroethene (1,1-DCE)	**9.4**	i	50	2.9	10	NA	1/30/12 19:56		278113	
1,2,4-Trichlorobenzene	50	U	50	2.6	10	NA	1/30/12 19:56		278113	
1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	10	NA	1/30/12 19:56		278113	
1,2-Dibromoethane	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
1,2-Dichlorobenzene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
1,2-Dichloroethane	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
1,2-Dichloropropane	50	U	50	2.9	10	NA	1/30/12 19:56		278113	
1,3-Dichlorobenzene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
1,4-Dichlorobenzene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
n-Butanol	2500	U	2500	110	10	NA	1/30/12 19:56		278113	
2-Butanone (MEK)	100	U	100	5.1	10	NA	1/30/12 19:56		278113	
2-Hexanone	100	U	100	3.5	10	NA	1/30/12 19:56		278113	
4-Methyl-2-pentanone	100	U	100	2.7	10	NA	1/30/12 19:56		278113	
Acetone	100	U	100	9.8	10	NA	1/30/12 19:56		278113	
Benzene	50	U	50	2.1	10	NA	1/30/12 19:56		278113	
Bromodichloromethane	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Bromoform	50	U	50	2.7	10	NA	1/30/12 19:56		278113	
Bromomethane	50	U	50	3.1	10	NA	1/30/12 19:56		278113	
Carbon Disulfide	**3.1**	i	100	2.0	10	NA	1/30/12 19:56		278113	
Carbon Tetrachloride	50	U	50	2.7	10	NA	1/30/12 19:56		278113	
Chlorobenzene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Chloroethane	50	U	50	3.1	10	NA	1/30/12 19:56		278113	
Chloroform	50	U	50	2.2	10	NA	1/30/12 19:56		278113	
Chloromethane	50	U	50	2.4	10	NA	1/30/12 19:56		278113	
Cyclohexane	100	U	100	2.4	10	NA	1/30/12 19:56		278113	
Dibromochloromethane	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	10	NA	1/30/12 19:56		278113	
Dichloromethane	50	U	50	2.2	10	NA	1/30/12 19:56		278113	
Ethylbenzene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Isopropylbenzene (Cumene)	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Methyl Acetate	100	U	100	2.4	10	NA	1/30/12 19:56		278113	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1100
Sample Matrix:	Water	**Date Received:**	1/27/12
Sample Name:	LC34-RW0008-052.0-20120126	**Units:**	µg/L
Lab Code:	R1200577-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Methylcyclohexane	100	U	100	2.5	10	NA	1/30/12 19:56		278113	
Styrene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Tetrachloroethene (PCE)	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Toluene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Trichloroethene (TCE)	**940**		50	2.4	10	NA	1/30/12 19:56		278113	
Trichlorofluoromethane (CFC 11)	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
Vinyl Chloride	**1000**		50	2.4	10	NA	1/30/12 19:56		278113	
cis-1,2-Dichloroethene	**1700**		100	4.0	20	NA	2/1/12 18:20		278439	
cis-1,3-Dichloropropene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
m,p-Xylenes	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
n-Butyl Acetate	50	U	50	2.1	10	NA	1/30/12 19:56		278113	
o-Xylene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	
trans-1,2-Dichloroethene	**22**	i	50	2.0	10	NA	1/30/12 19:56		278113	
trans-1,3-Dichloropropene	50	U	50	2.0	10	NA	1/30/12 19:56		278113	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	1/30/12 19:56	
Dibromofluoromethane	102	89-119	1/30/12 19:56	
Toluene-d8	102	87-121	1/30/12 19:56	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1100
Sample Matrix:	Water	**Date Received:**	1/27/12
		Date Analyzed:	1/30/12 13:53
Sample Name:	LC34-RW0008-052.0-20120126	**Units:**	µg/L
Lab Code:	R1200577-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	278057
Data File Name:	star700.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**13**		5.0	
74-85-1	Ethene	**370**		5.0	
74-82-8	Methane	**490**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12 1100
Sample Matrix:	Water	**Date Received:**	1/27/12
Sample Name:	LC34-RW0008-052.0-20120126	**Units:**	mg/L
Lab Code:	R1200577-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Pyruvic Acid	0.50	U	0.50	1	NA	2/16/12 00:33		280218	
Acetic Acid	**100**		1.0	1	NA	2/16/12 00:33		280218	
Butanoic Acid (Butyric Acid)	**7.1**		2.0	1	NA	2/16/12 00:33		280218	
Lactic Acid	1.0	U	1.0	1	NA	2/16/12 00:33		280218	
Propionic Acid	**1.2**		1.0	1	NA	2/16/12 00:33		280218	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12
Sample Matrix:	Water	**Date Received:**	1/27/12
		Date Analyzed:	2/1/12 17:11
Sample Name:	LC34-TB-20120126	**Units:**	µg/L
Lab Code:	R1200577-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	278439
Data File Name:	J:\ACQUDATA\msvoa10\data\020112\D7941.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	1/26/12
Sample Matrix:	Water	**Date Received:**	1/27/12
		Date Analyzed:	2/1/12 17:11
Sample Name:	LC34-TB-20120126	**Units:**	µg/L
Lab Code:	R1200577-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	278439
Data File Name:	J:\ACQUDATA\msvoa10\data\020112\D7941.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	2/1/12 17:11	
Dibromofluoromethane	106	89-119	2/1/12 17:11	
Toluene-d8	105	87-121	2/1/12 17:11	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1200577-MB

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	2/7/12 09:45	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	1/27/12 10:25	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	1/31/12 16:19	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	1/27/12 10:25	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	2/9/12 14:24	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	1/27/12 10:25	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	1/27/12 11:54	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	1/27/12 10:25	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	1/31/12 13:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1200577-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/31/12	2/1/12 23:30	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/31/12	2/1/12 23:30	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	1/31/12	2/1/12 23:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1200577-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	1/31/12	2/1/12 23:41	
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/31/12	2/1/12 23:41	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	1/31/12	2/1/12 23:41	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1200577-MB3	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Iron, Dissolved	6010C	100	U	µg/L	100	1	1/31/12	2/2/12 17:47	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	1/31/12	2/2/12 17:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/30/12 11:39
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201010-08	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	278113
Data File Name:	J:\ACQUDATA\msvoa12\Data\013012\U5934.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/30/12 11:39
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201010-08	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	278113
Data File Name:	J:\ACQUDATA\msvoa12\Data\013012\U5934.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	1/30/12 11:39	
Dibromofluoromethane	98	89-119	1/30/12 11:39	
Toluene-d8	100	87-121	1/30/12 11:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/1/12 16:02
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201096-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	278439
Data File Name:	J:\ACQUDATA\msvoa10\data\020112\D7939.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/1/12 16:02
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201096-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	278439
Data File Name:	J:\ACQUDATA\msvoa10\data\020112\D7939.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	2/1/12 16:02	
Dibromofluoromethane	107	89-119	2/1/12 16:02	
Toluene-d8	107	87-121	2/1/12 16:02	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/30/12 09:30
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1200918-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	278057
Data File Name:	star681.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	1/30/12 11:56
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1200962-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	278167
Data File Name:	J:\ACQUDATA\HPLC05\DATA\013012\X0007380.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1200577
Project:	ESTCP PED LC34 1/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1201678-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Pyruvic Acid	0.50	U	0.50	1	NA	2/15/12 21:24		280218	
Acetic Acid	1.0	U	1.0	1	NA	2/15/12 21:24		280218	
Butanoic Acid (Butyric Acid)	2.0	U	2.0	1	NA	2/15/12 21:24		280218	
Lactic Acid	1.0	U	1.0	1	NA	2/15/12 21:24		280218	
Propionic Acid	1.0	U	1.0	1	NA	2/15/12 21:24		280218	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 1/31/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1200577-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1200577-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	5.53	5.2	105	5.59	5.2	107	56 - 138	1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 1/27/12 - 2/ 9/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1200577-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.962	1.00	96	90 - 110
Chloride	300.0	1.96	2.00	98	90 - 110
Iodide	300.0	0.942	1.00	94	90 - 110
Nitrate as Nitrogen	300.0	0.963	1.00	96	90 - 110
Nitrite as Nitrogen	353.2	0.246	0.250	99	90 - 110
Sulfate	300.0	1.92	2.00	96	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	20.2	20.0	101	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.92	10.0	99	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 2/ 1/12

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1200577-LCS Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	37.3	40	93	80 - 120
Iron, Dissolved	6010C	1000	1000	100	80 - 120
Manganese, Dissolved	6010C	489	500	98	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 1/30/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 278113

Lab Control Sample
RQ1201010-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.7	20.0	89	72 - 128
1,1,2,2-Tetrachloroethane	23.6	20.0	118	72 - 131
1,1,2-Trichloroethane	20.0	20.0	100	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.9	20.0	85	68 - 136
1,1-Dichloroethane (1,1-DCA)	17.2	20.0	86	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.1	20.0	90	72 - 129
1,2,4-Trichlorobenzene	24.6	20.0	123	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	26.0	20.0	130	62 - 131
1,2-Dibromoethane	20.4	20.0	102	78 - 125
1,2-Dichlorobenzene	22.2	20.0	111	79 - 124
1,2-Dichloroethane	19.0	20.0	95	73 - 127
1,2-Dichloropropane	17.9	20.0	90	80 - 123
1,3-Dichlorobenzene	22.1	20.0	111	78 - 124
1,4-Dichlorobenzene	21.4	20.0	107	78 - 123
n-Butanol	1140	1000	114	70 - 130
2-Butanone (MEK)	18.8	20.0	94	60 - 133
2-Hexanone	20.7	20.0	103	61 - 131
4-Methyl-2-pentanone	20.1	20.0	100	61 - 132
Acetone	19.0	20.0	95	54 - 139
Benzene	19.2	20.0	96	78 - 121
Bromodichloromethane	19.5	20.0	98	80 - 125
Bromoform	23.3	20.0	117	68 - 130
Bromomethane	18.9	20.0	95	57 - 144
Carbon Disulfide	24.7	20.0	123	52 - 140
Carbon Tetrachloride	18.4	20.0	92	68 - 133
Chlorobenzene	20.6	20.0	103	80 - 121
Chloroethane	17.5	20.0	88	71 - 130
Chloroform	18.7	20.0	94	78 - 125
Chloromethane	18.6	20.0	93	61 - 138
Cyclohexane	18.5	20.0	93	57 - 126
Dibromochloromethane	21.6	20.0	108	78 - 133
Dichlorodifluoromethane (CFC 12)	20.8	20.0	104	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 1/30/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 278113

Lab Control Sample
RQ1201010-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.0	20.0	90	75 - 125
Ethylbenzene	20.8	20.0	104	78 - 123
Isopropylbenzene (Cumene)	24.3	20.0	122	73 - 133
Methyl Acetate	21.4	20.0	107	57 - 157
Methyl tert-Butyl Ether	19.0	20.0	95	75 - 126
Methylcyclohexane	20.1	20.0	100	61 - 125
Styrene	20.8	20.0	104	80 - 132
Tetrachloroethene (PCE)	20.4	20.0	102	72 - 131
Toluene	20.1	20.0	100	78 - 122
Trichloroethene (TCE)	19.4	20.0	97	74 - 127
Trichlorofluoromethane (CFC 11)	18.6	20.0	93	69 - 141
Vinyl Chloride	19.1	20.0	95	72 - 138
cis-1,2-Dichloroethene	19.4	20.0	97	78 - 122
cis-1,3-Dichloropropene	18.2	20.0	91	77 - 125
m,p-Xylenes	41.7	40.0	104	79 - 126
n-Butyl Acetate	19.2	20.0	96	31 - 144
o-Xylene	20.7	20.0	104	77 - 118
trans-1,2-Dichloroethene	18.9	20.0	95	75 - 121
trans-1,3-Dichloropropene	20.1	20.0	100	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 2/ 1/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 278439

Lab Control Sample
RQ1201096-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.9	20.0	90	72 - 128
1,1,2,2-Tetrachloroethane	19.5	20.0	98	72 - 131
1,1,2-Trichloroethane	19.8	20.0	99	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.2	20.0	81	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.1	20.0	96	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.6	20.0	88	72 - 129
1,2,4-Trichlorobenzene	21.6	20.0	108	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.5	20.0	93	62 - 131
1,2-Dibromoethane	20.1	20.0	100	78 - 125
1,2-Dichlorobenzene	20.1	20.0	100	79 - 124
1,2-Dichloroethane	22.0	20.0	110	73 - 127
1,2-Dichloropropane	20.1	20.0	101	80 - 123
1,3-Dichlorobenzene	19.2	20.0	96	78 - 124
1,4-Dichlorobenzene	20.0	20.0	100	78 - 123
n-Butanol	930	1000	93	70 - 130
2-Butanone (MEK)	19.7	20.0	98	60 - 133
2-Hexanone	19.8	20.0	99	61 - 131
4-Methyl-2-pentanone	20.5	20.0	103	61 - 132
Acetone	20.7	20.0	104	54 - 139
Benzene	20.3	20.0	102	78 - 121
Bromodichloromethane	20.2	20.0	101	80 - 125
Bromoform	23.0	20.0	115	68 - 130
Bromomethane	21.7	20.0	109	57 - 144
Carbon Disulfide	23.4	20.0	117	52 - 140
Carbon Tetrachloride	20.2	20.0	101	68 - 133
Chlorobenzene	20.1	20.0	101	80 - 121
Chloroethane	18.9	20.0	94	71 - 130
Chloroform	19.5	20.0	97	78 - 125
Chloromethane	22.5	20.0	113	61 - 138
Cyclohexane	23.5	20.0	117	57 - 126
Dibromochloromethane	20.6	20.0	103	78 - 133
Dichlorodifluoromethane (CFC 12)	19.5	20.0	98	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 2/ 1/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 278439

Analyte Name	Lab Control Sample RQ1201096-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.0	20.0	95	75 - 125
Ethylbenzene	19.4	20.0	97	78 - 123
Isopropylbenzene (Cumene)	21.5	20.0	107	73 - 133
Methyl Acetate	21.6	20.0	108	57 - 157
Methyl tert-Butyl Ether	18.2	20.0	91	75 - 126
Methylcyclohexane	18.7	20.0	94	61 - 125
Styrene	17.9	20.0	89	80 - 132
Tetrachloroethene (PCE)	22.1	20.0	111	72 - 131
Toluene	20.3	20.0	102	78 - 122
Trichloroethene (TCE)	20.4	20.0	102	74 - 127
Trichlorofluoromethane (CFC 11)	19.2	20.0	96	69 - 141
Vinyl Chloride	20.5	20.0	102	72 - 138
cis-1,2-Dichloroethene	18.7	20.0	94	78 - 122
cis-1,3-Dichloropropene	19.0	20.0	95	77 - 125
m,p-Xylenes	39.4	40.0	99	79 - 126
n-Butyl Acetate	19.0	20.0	95	31 - 144
o-Xylene	18.9	20.0	94	77 - 118
trans-1,2-Dichloroethene	18.9	20.0	94	75 - 121
trans-1,3-Dichloropropene	18.7	20.0	93	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 1/30/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 278057

Lab Control Sample
RQ1200918-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	23.7	26.0	91	56 - 148
Ethene	20.7	24.3	85	58 - 155
Methane	23.7	26.2	90	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 1/30/12

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 278167

	Lab Control Sample RQ1200962-02			Duplicate Lab Control Sample RQ1200962-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	0.840	0.991	85	0.850	0.991	86	70 - 130	1	30
Acetic Acid	8.70	10.3	85	8.92	10.3	87	70 - 135	2	30
Butanoic Acid (Butyric Acid)	9.24	10.1	91	9.24	10.1	91	78 - 113	<1	30
Lactic Acid	9.60	10.0	96	9.60	10.0	96	61 - 109	<1	30
Propionic Acid	9.55	9.93	96	8.92	9.93	90	80 - 125	7	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 1/26/12
Sample Matrix: Water

Service Request: R1200577
Date Analyzed: 2/15/12

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 280218

	Lab Control Sample RQ1201678-02			Duplicate Lab Control Sample RQ1201678-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.06	1.00	106	1.04	1.00	104	70 - 130	2	30
Acetic Acid	9.72	10.3	95	9.54	10.3	93	70 - 135	2	30
Butanoic Acid (Butyric Acid)	7.86	10.1	78	9.93	10.1	98	78 - 113	23	30
Lactic Acid	9.08	10.0	90	8.98	10.0	89	61 - 109	1	30
Propionic Acid	10.0	10.1	100	10.1	10.1	100	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20120126	1/26/12	1017	-001, 002	W	15	3	2	1	3	1	3	1	1		
LC34-RW0008-052.0-20120126	1/26/12	1100	003, 004	W	15	3	2	1	3	1	3	1	1		
LC34-TB-20120126	NA	NA	-005	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab

R1200577
GeoSyntec Consultants
ESTCP PED LC34 1/26/12

RELINQUISHED BY:

Signature:

Printed Name: Joseph Bartlett

Firm: GeoSyntec Consultants

Date/Time: 1/26/12 – 1630

RECEIVED BY:

Signature:

Printed Name: FedEx

Firm:

Date/Time: 1/26/12 – 1630

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Amy Hentschke

Firm: ALS

Date/Time: 1/27/12 1005

Cooler Receipt And Preservation Check Form

Project/Client GeoSyntec Folder Number R1200577

Cooler received on 1/27/12 by: AHH COURIER: CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	YES	(NO) *			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	3.5°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 1/27/12 1010

Thermometer ID (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: KB 1/27/12

Cooler Breakdown: Date: 1/27/12 Time: 1226 by: _____

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH	X		WC1031316	10/12				
≤2	HNO_3								
≤2	H_2SO_4			WC1031A3	11/12				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC1032105	10/12				
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 121211-2xx, 061711-22, 1-194-001

Other Comments:

* Vial for L34-RW0008 for organic acid broken.

PC Secondary Review: KB 2/14/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

www.siremlab.com
130 Research Lane, Suite 2
Guelph, Ontario N1G 5G3
Phone (519) 822-2265
Fax (519) 822-3151

Certificate of Analysis: Gene-Trac® *Dehalococcoides* Assay

Customer: Cory Repta, Geosyntec Consultants
Project: ESTCP LC34 PED
Customer Reference: TR0272A

SiREM Reference: S-2471
Report Date: 6-Mar-12
Data Files: MyiQ-DHC-QPCR-0876
MyiQ-DB-DHC-QPCR-0272

Table 1a: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent Dhc *	*Dehalococcoides* Enumeration/Liter **
LC34-RW0007-038.5-20120214	DHC-8066	14-Feb-12	Groundwater	15 - 38 %	2×10^8
LC34-RW0008-052.0-20120214	DHC-8067	14-Feb-12	Groundwater	10 - 27 %	1×10^8
LC34-BW0003C-038.5-20120215	DHC-8068	15-Feb-12	Groundwater	23 - 54 %	3×10^8
LC34-BW0003E-052.5-20120215	DHC-8069	15-Feb-12	Groundwater	0.3 - 0.8 %	1×10^6
LC34-BW0001C-038.5-20120216	DHC-8070	16-Feb-12	Groundwater	4 - 12 %	5×10^7
LC34-BW0001E-052.5-20120216	DHC-8071	16-Feb-12	Groundwater	4 - 12 %	3×10^7

Notes:

* Percent *Dehalococcoides* (Dhc) in microbial population. This value is calculated by dividing the number of Dhc 16S ribosomal ribonucleic acid (rRNA) gene copies by the total number of bacteria as estimated by the mass of DNA extracted from the sample. Range represents normal variation in Dhc enumeration.

** Based on quantification of Dhc 16S rRNA gene copies. Dhc are generally reported to contain one 16S rRNA gene copy per cell; therefore, this number is often interpreted to represent the number of Dhc cells present in the sample.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *Dehalococcoides* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.

Analyst: Kela Bartle
Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar
Ximena Druar, B.Sc.
Molecular Biology Coordinator

www.siremlab.com
130 Research Lane, Suite 2
Guelph, Ontario N1G 5G3
Phone (519) 822-2265
Fax (519) 822-3151

Certificate of Analysis: Gene-Trac® VC, Vinyl Chloride Reductase (*vcrA*) Assay

Customer: Cory Repta, Geosyntec Consultants

Project: ESTCP LC34 PED

Customer Reference: TR0272A

SiREM Reference: S-2471

Report Date: 6-Mar-12

Data Files: MyiQ-VC-QPCR-0458
VC-QPCR-Check-gel-0479
MyiQ-DB-VC-QPCR-0202

Table 1b: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent *vcrA* *	Vinyl Chloride Reductase (*vcrA*) Gene Copies/Liter
LC34-RW0007-038.5-20120214	VCR-3125	14-Feb-12	Groundwater	2 - 6 %	3×10^7
LC34-RW0008-052.0-20120214	VCR-3126	14-Feb-12	Groundwater	3 - 9 %	3×10^7

Notes:

* Percent *vcrA* in microbial population. This value is calculated by dividing the number of vinyl chloride reductase A (*vcrA)* gene copies quantified by the total number of bacteria estimated to be in the sample based on the mass of DNA extracted from the sample. Range represents normal variation in enumeration of *vcrA* .

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *vcrA* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.
C Correction factor applied to correct for non-specific PCR amplification products.

Analyst: Kela Bartle
Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar
Ximena Druar, B.Sc.
Molecular Biology Coordinator

Table 2.1: Detailed Test Parameters, Test Reference S-2471

Customer Sample ID	LC34-RW0007-038.5-20120214	LC34-RW0008-052.0-20120214	LC34-BW0003C-038.5-20120215
SiREM Sample ID	DHC-8066/VCR-3125	DHC-8067/VCR-3126	DHC-8068
Date Received	21-Feb-12	21-Feb-12	21-Feb-12
Sample Temperature	9 ºC	9 ºC	9 ºC
Filtration Date	23-Feb-12	23-Feb-12	23-Feb-12
Volume Used for DNA Extraction	500 mL	500 mL	500 mL
DNA Extraction Date	27-Feb-12	27-Feb-12	27-Feb-12
DNA Concentration in Sample (extractable)	2505 ng/L	2015 ng/L	2556 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
Dhc qPCR Date Analyzed	2-Mar-12	2-Mar-12	2-Mar-12
***vcrA* qPCR Date Analyzed**	5-Mar-12	5-Mar-12	NA
qPCR Controls (see Tables 3 & 4)	Passed	Passed	Passed
Comments	- -	- -	*vcrA* analysis not performed upon client request.

Notes:

Refer to Tables 3 & 4 for detailed results of controls.
°C = degrees Celsius
ng/L = nanograms per liter
mL = milliliters
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = *Dehalococcoides*
vcrA = vinyl chloride reductase
DNA = Deoxyribonucleic acid
NA = not applicable

Table 2.2: Detailed Test Parameters, Test Reference S-2471

Customer Sample ID	LC34-BW0003E-052.5-20120215	LC34-BW0001C-038.5-20120216	LC34-BW0001E-052.5-20120216
SiREM Sample ID	DHC-8069	DHC-8070	DHC-8071
Date Received	21-Feb-12	21-Feb-12	21-Feb-12
Sample Temperature	9 ºC	9 ºC	9 ºC
Filtration Date	23-Feb-12	23-Feb-12	23-Feb-12
Volume Used for DNA Extraction	500 mL	500 mL	500 mL
DNA Extraction Date	27-Feb-12	27-Feb-12	27-Feb-12
DNA Concentration in Sample (extractable)	923 ng/L	2301 ng/L	1313 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
Dhc qPCR Date Analyzed	2-Mar-12	2-Mar-12	2-Mar-12
***vcrA* qPCR Date Analyzed**	NA	NA	NA
qPCR Controls (see Tables 3 & 4)	Passed	Passed	Passed
Comments	*vcrA* analysis not performed upon client request.	*vcrA* analysis not performed upon client request.	*vcrA* analysis not performed upon client request.

Notes:

Refer to Tables 3 & 4 for detailed results of controls.
°C = degrees Celsius
ng/L = nanograms per liter
mL = milliliters
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = *Dehalococcoides*
vcrA = vinyl chloride reductase
DNA = Deoxyribonucleic acid
NA = not applicable

Table 3: Gene-Trac Dhc Control Results, Test Reference S-2471

Laboratory Control	Analysis Date	Control Description	Spiked Dhc 16S rRNA Gene Copies per Liter	Recovered Dhc 16S rRNA Gene Copies per Liter	Comments
Positive Control Low Concentration	2-Mar-12	qPCR with KB1 genomic DNA (CSLD-0513)	1.4×10^5	1.4×10^5	- -
Positive Control High Concentration	2-Mar-12	qPCR with KB1 genomic DNA (CSHD-0513)	1.8×10^7	1.9×10^7	- -
Negative Control	2-Mar-12	Tris Reagent Blank (TBD-0473)	0	2.6×10^3U	- -
DNA Extraction Blank	1-Mar-12	DNA extraction sterile water (FB-1639)	0	2.6×10^3U	- -

Notes:

Dhc = *Dehalococcoides*

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

Table 4: Gene-Trac VC Control Results, Test Reference S-2471

Laboratory Control	Analysis Date	Control Description	Spiked *vcrA* reductase Gene Copies per Liter	Recovered *vcrA* reductase Gene Copies per Liter	Comments
Positive Control Low Concentration	5-Mar-12	qPCR with KB-1 genomic DNA (CSLV-0326)	2.1×10^5	2.9×10^5	- -
Positive Control High Concentration	5-Mar-12	qPCR with KB-1 genomic DNA (CSHV-0326)	2.7×10^7	3.3×10^7	- -
Negative Control	5-Mar-12	Tris Reagent Blank (TBV-0297)	0	2.6×10^3U	- -
DNA Extraction Blank	5-Mar-12	DNA extraction sterile water (FB-1639)	0	2.6×10^3U	- -

Notes:

qPCR = quantitative PCR

DNA = Deoxyribonucleic acid

16S rRNA = 16S ribosomal ribonucleic acid

vcrA = vinyl chloride reductase

U Not detected, associated value is the quantification limit.

Chain-of-Custody Form

SiREM Site Recovery & Management
130 Research Lane, Suite 2 · Guelph, Ontario, Canada N1G 5G3 · Phone (519) 822-2265 or toll free 1-866-251-1747 Fax (519) 822-3151
www.siremlab.com

Lab # S-2471

Project Name	ESTCP LC34 PED
Project #	TR0272A
Project Manager	Cory Repta
Company	GeoSyntec Consultants
Address	130 Research Ln. Ste 2
	Guelph, ON N1G 5G3
Phone #	519 822 2230
Fax #	
Sampler's Signature	
Sampler's Printed Name	David Sizemore

Analysis

Preservative: — —

Grab-TCE-DNE / Grab-Tot VC

Preservative Key
0. None
1. HCL
2. Other
3. Other
4. Other
5. Other
6. Other

Client Sample ID	Lab ID	Sampling Date	Sampling Time	Matrix	# of Containers	Other Information
LC34-DPT0346-040.0	20120213	2/13/12	858	Soil	4	Labeled as DPT0332 on Jar
LC34-DPT0346-043.5	20120213		909			Labeled as DPT0332 on Jar
LC34-DPT0346-046.5	20120213		930			Labeled as DPT0332 on Jar
LC34-DPT0346-048.0	-20120213		942			Labeled as DPT0332 on Jar
LC34-DPT0346-053.0	-20120213		953			Labeled as DPT0332 on Jar
LC34-DPT0347-040.0	-20120213		1045			Labeled as DPT0333 on Jar
LC34-DPT0347-045.5	-20120213		1055			Labeled as DPT0333 on Jar
LC34-DPT0347-047.0	-20120213		1107			Labeled as DPT0333 on Jar
LC34-DPT0347-050.0	-20120213		1115			Labeled as DPT0333 on Jar
LC34-DPT0347-053.0	-20120213		1135			Labeled as DPT0333 on Jar

Sample Receipt

Cooler Condition: Good

Cooler Temperature: 9°C

Custody Seals: Yes ☐ No ☒

Invoice Information

P.O. #

Bill To:

For Lab Use Only

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: David Sizemore	Printed Name:	Printed Name	Printed Name: D. Nespoli	Printed Name	Printed Name
Firm: GeoSyntec	Firm:	Firm	Firm: SiREM	Firm	Firm
Date/Time: 2/16/12 — 1630	Date/Time:	Date/Time	Date/Time: Feb 21 '12 13:00	Date/Time	Date/Time

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

In the absence of an executed agreement, submission of samples to SiREM implies consent for performance of analyses specified on this Chain-of-Custody form and agreement with the terms and conditions of the SiREM Laboratory Services Agreement. The entity submitting samples shall be responsible for payment in full for said analyses.

Chain-of-Custody Form

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www.siremlab.com

Lab # 13-2471

Project Name	ESTCP LC34 PCD
Project #	TR0272A
Project Manager	CORY REPTA
Company	GEOSYNTEC CONSULTANTS
Address	130 RESEARCH LN. STE. 2
	GUELPH, ON N1G5G3
Phone #	519-822-2230
Fax #	
Sampler's Signature	
Sampler's Printed Name	JOSEPH BARTLETT

Analysis

Preservative: 0 0

Gen-Trac Dup | Gen-Trac VC

Preservative Key
0. None
1. HCL
2. Other
3. Other
4. Other
5. Other
6. Other

Client Sample ID	Lab ID	Sampling Date	Sampling Time	Matrix	# of Containers	Gen-Trac Dup	Gen-Trac VC	Other Information
LC34-RW0007-038.5	-20120214	2/14/12	1018	WATER	1	X	X	
LC34-RW0008-052.0	-20120214	2/14/12	1110	↓	↓	X	X	
LC34-BW0003C-038.5	-20120215	2/15/12	1150			X	X	
LC34-BW0003E-052.5	-20120215	2/15/12	1427			X	X	
LC34-BW0001C-038.5	-20120216	2/16/12	1005			X	X	
LC34-BW0001E-052.5	-20120216	2/16/12	1136	↓	↓	X	X	

Sample Receipt
Cooler Condition: GOOD.
Cooler Temperature: 9°C.
Custody Seals: Yes ☐ No ☒

Invoice Information
P.O. #
Bill To:

For Lab Use Only

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: JOSEPH BARTLETT	Printed Name	Printed Name	Printed Name: D. DESPOLI	Printed Name	Printed Name
Firm: GEOSYNTEC CONSULTANTS	Firm	Firm	Firm: SIREM	Firm	Firm
Date/Time: 2/16/12 - 1630	Date/Time	Date/Time	Date/Time: Feb. 21 '12 1pm.	Date/Time	Date/Time

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

In the absence of an executed agreement, submission of samples to SiREM implies consent for performance of analyses specified on this Chain-of-Custody form and agreement with the terms and conditions of the SiREM Laboratory Services Agreement. The entity submitting samples shall be responsible for payment in full for said analyses.

March 01, 2012 Service Request No: R1201033

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: LC34 Soils 2/13/12/ TR0272

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on February 15, 2012. For your reference, these analyses have been assigned our service request number **R1201033**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

Client:	Geosyntec Consultants	**Service Request No.:**	R1201033
Project:	ESTCP PED LC34/ TR0272 2/13/12	**Date Received:**	2/15/12
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Twenty-two (22) soil samples and one (1) Trip Blank were collected by the client on 2/13/12 in Terracore samplers and were received for analysis at Columbia Analytical Services on 2/15/12 via a national courier. The samples were received at a cooler temperature range of 2.1-5.7°C within the guidelines of 0-6°C. The sample ID's were revised as per a client email on 2/15/12.

Organic Compounds

Twenty-two (22) water samples and one (1) Trip Blank were analyzed for a client specific list of Volatile Organics by Method 8260C. All soils were analyzed for % Solids in order to report all data on a dry weight basis.

Initial Calibration Criteria was met for all samples for 8260C. The Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for the following:

n-Butyl Acetate on the 2/23/12 run,
Acetone, Bromomethane, and Chloroform on the 2/24/12 (analysis lot #281378) analytical run,
Bromoform, Bromomethane, and n-Butyl Acetate on the 2/24/12 (analysis lot# 281373) run,
Acetone and Bromomethane on the 2/25/12 (analysis lot # 281419) run,
Bromomethane on the 2/25/12 (analysis lot #281447) run,
1,1-Dichloroethene, MEK, Carbon Disulfide, Chloroform, Dichloromethane on the 2/27/12.

All detected concentrations for these compound in samples associated with these CCV's should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicates (LCSD for Organic Acids only) recoveries were all within QC limits except for the following:
Tetrachloroethene on the LCS from 2/24/12,
and 1,2-Dichloropropane on the LCS from 2/25/12.
The Relative Percent Difference (RPD) calculations were acceptable except for the following:
n-Butanol, 2-Hexanone, 4-Methyl-2-pentanone, Bromoform and Chloroethane on the 2/25/12 LCS/LCSD.
All exceedences have been flagged as "*".

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

Sample location LC34-DPT045.5-20120213 (R1201033-019) was repeated twice at the low level and once at as a medium level. The results varied between runs. Rather than merge the sample data, all runs have been reported by adding on the low level results as 2 additional locations to report: LC34-DPT045.4-20120213 (R1201033-024) and LC34-DPT045.6-20120213 (R1201033-025). The depths were altered slightly as per client instructions.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Approved by Karen Beeler **Date** 3/30/12

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for low level hits for MEK on the 2/23/12, 2/24/12 (analysis lot # 281378), and 2/25/12 blanks, Acetone on the 2/24/12 (analysis lot #281378) and Bromomethane on the 2/27/12 blank. Any affected sample hits would be flagged as "B".

No other analytical or QC problems were encountered.

Approved by Karen Beard **Date** 3/30/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1201033

Lab ID	Client ID
R1201033-001	LC34-DPT0346-037.0-20120213
R1201033-002	LC34-DPT0346-040.0-20120213
R1201033-003	LC34-DPT0346-043.5-20120213
R1201033-004	LC34-DPT0346-046.5-20120213
R1201033-005	LC34-DPT0346-045.0-20120213
R1201033-006	LC34-DPT0346-048.0-20120213
R1201033-007	LC34-DPT0346-053.0-20120213
R1201033-008	LC34-DPT0346-055.0-20120213
R1201033-009	LC34-DPT0347-037.0-20120213
R1201033-010	LC34-DPT0347-040.0-20120213
R1201033-011	LC34-DPT0347-045.5-20120213
R1201033-012	LC34-DPT0347-047.0-20120213
R1201033-013	LC34-DPT0347-050.0-20120213
R1201033-014	LC34-DPT0347-050.5-20120213
R1201033-015	LC34-DPT0347-053.0-20120213
R1201033-016	LC34-DPT0348-034.5-20120213
R1201033-017	LC34-DPT0348-037.0-20120213
R1201033-018	LC34-DPT0348-040.0-20120213
R1201033-019	LC34-DPT0348-045.5-20120213
R1201033-020	LC34-DPT0348-047.0-20120213
R1201033-021	LC34-DPT0348-048.5-20120213
R1201033-022	LC34-DPT0348-053.0-20120213
R1201033-023	LC34-TB-20120213
R1201033-024	LC34-DPT0348-045.4-20120213
R1201033-025	LC34-DPT0348-045.6-20120213

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0848
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-037.0-20120213		
Lab Code:	R1201033-001	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**70.2**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0848
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 19:55
Sample Name:	LC34-DPT0346-037.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-001	**Basis:**	Dry
		Percent Solids:	70.2

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8496.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	110.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	790	U	790	57	
79-34-5	1,1,2,2-Tetrachloroethane	790	U	790	32	
79-00-5	1,1,2-Trichloroethane	790	U	790	37	
75-34-3	1,1-Dichloroethane (1,1-DCA)	790	U	790	32	
75-35-4	1,1-Dichloroethene (1,1-DCE)	790	U	790	32	
107-06-2	1,2-Dichloroethane	790	U	790	32	
78-87-5	1,2-Dichloropropane	790	U	790	40	
71-36-3	n-Butanol	39000	U	39000	2500	
78-93-3	2-Butanone (MEK)	790	U	790	110	
591-78-6	2-Hexanone	790	U	790	40	
108-10-1	4-Methyl-2-pentanone	790	U	790	37	
67-64-1	Acetone	790	U	790	180	
71-43-2	Benzene	790	U	790	32	
75-27-4	Bromodichloromethane	790	U	790	32	
75-25-2	Bromoform	790	U	790	38	
74-83-9	Bromomethane	790	U	790	65	
75-15-0	Carbon Disulfide	790	U	790	150	
56-23-5	Carbon Tetrachloride	790	U	790	41	
108-90-7	Chlorobenzene	**120**	I	790	32	
75-00-3	Chloroethane	790	U	790	60	
67-66-3	Chloroform	790	U	790	32	
74-87-3	Chloromethane	790	U	790	73	
124-48-1	Dibromochloromethane	790	U	790	32	
75-09-2	Dichloromethane	790	U	790	43	
100-41-4	Ethylbenzene	790	U	790	32	
100-42-5	Styrene	790	U	790	32	
127-18-4	Tetrachloroethene (PCE)	790	U	790	32	
108-88-3	Toluene	790	U	790	32	
79-01-6	Trichloroethene (TCE)	**620**	I	790	32	
75-01-4	Vinyl Chloride	**1700**		790	45	
156-59-2	cis-1,2-Dichloroethene	**6100**		790	130	
10061-01-5	cis-1,3-Dichloropropene	790	U	790	32	
179601-23-1	m,p-Xylenes	1600	U	1600	110	
123-86-4	n-Butyl Acetate	790	U	790	32	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0848
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 19:55
Sample Name:	LC34-DPT0346-037.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-001	**Basis:**	Dry
		Percent Solids:	70.2

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8496.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	110.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	790	U	790	32	
156-60-5	trans-1,2-Dichloroethene	99	I	790	37	
10061-02-6	trans-1,3-Dichloropropene	790	U	790	32	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	2/23/12 19:55	
Dibromofluoromethane	104	89-119	2/23/12 19:55	
Toluene-d8	105	87-121	2/23/12 19:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0858
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-040.0-20120213		
Lab Code:	R1201033-002	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**67.4**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0858
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 20:25
Sample Name:	LC34-DPT0346-040.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-002	**Basis:**	Dry
		Percent Solids:	67.4

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8497.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	237

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1800	U	1800	130	
79-34-5	1,1,2,2-Tetrachloroethane	1800	U	1800	71	
79-00-5	1,1,2-Trichloroethane	1800	U	1800	81	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1800	U	1800	71	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1800	U	1800	71	
107-06-2	1,2-Dichloroethane	1800	U	1800	71	
78-87-5	1,2-Dichloropropane	1800	U	1800	88	
71-36-3	n-Butanol	88000	U	88000	5500	
78-93-3	2-Butanone (MEK)	1800	U	1800	240	
591-78-6	2-Hexanone	1800	U	1800	88	
108-10-1	4-Methyl-2-pentanone	1800	U	1800	81	
67-64-1	Acetone	1800	U	1800	400	
71-43-2	Benzene	1800	U	1800	71	
75-27-4	Bromodichloromethane	1800	U	1800	71	
75-25-2	Bromoform	1800	U	1800	85	
74-83-9	Bromomethane	1800	U	1800	150	
75-15-0	Carbon Disulfide	1800	U	1800	320	
56-23-5	Carbon Tetrachloride	1800	U	1800	92	
108-90-7	Chlorobenzene	**140**	I	1800	71	
75-00-3	Chloroethane	1800	U	1800	140	
67-66-3	Chloroform	1800	U	1800	71	
74-87-3	Chloromethane	1800	U	1800	170	
124-48-1	Dibromochloromethane	1800	U	1800	71	
75-09-2	Dichloromethane	1800	U	1800	95	
100-41-4	Ethylbenzene	1800	U	1800	71	
100-42-5	Styrene	1800	U	1800	71	
127-18-4	Tetrachloroethene (PCE)	1800	U	1800	71	
108-88-3	Toluene	1800	U	1800	71	
79-01-6	Trichloroethene (TCE)	**420**	I	1800	71	
75-01-4	Vinyl Chloride	**670**	I	1800	99	
156-59-2	cis-1,2-Dichloroethene	**14000**		1800	280	
10061-01-5	cis-1,3-Dichloropropene	1800	U	1800	71	
179601-23-1	m,p-Xylenes	3500	U	3500	240	
123-86-4	n-Butyl Acetate	1800	U	1800	71	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0858
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 20:25
Sample Name:	LC34-DPT0346-040.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-002	**Basis:**	Dry
		Percent Solids:	67.4

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8497.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	237

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	1800	U	1800	71	
156-60-5	trans-1,2-Dichloroethene	**340**	I	1800	81	
10061-02-6	trans-1,3-Dichloropropene	1800	U	1800	71	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	2/23/12 20:25	
Dibromofluoromethane	105	89-119	2/23/12 20:25	
Toluene-d8	106	87-121	2/23/12 20:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0909
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-043.5-20120213		
Lab Code:	R1201033-003	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**81.1**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0909
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 20:55
Sample Name:	LC34-DPT0346-043.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-003	**Basis:**	Dry
		Percent Solids:	81.1

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8498.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	154

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	950	U	950	69	
79-34-5	1,1,2,2-Tetrachloroethane	950	U	950	38	
79-00-5	1,1,2-Trichloroethane	950	U	950	44	
75-34-3	1,1-Dichloroethane (1,1-DCA)	950	U	950	38	
75-35-4	1,1-Dichloroethene (1,1-DCE)	950	U	950	38	
107-06-2	1,2-Dichloroethane	950	U	950	38	
78-87-5	1,2-Dichloropropane	950	U	950	48	
71-36-3	n-Butanol	47000	U	47000	3000	
78-93-3	2-Butanone (MEK)	950	U	950	130	
591-78-6	2-Hexanone	950	U	950	48	
108-10-1	4-Methyl-2-pentanone	950	U	950	44	
67-64-1	Acetone	950	U	950	220	
71-43-2	Benzene	950	U	950	38	
75-27-4	Bromodichloromethane	950	U	950	38	
75-25-2	Bromoform	950	U	950	46	
74-83-9	Bromomethane	950	U	950	78	
75-15-0	Carbon Disulfide	950	U	950	180	
56-23-5	Carbon Tetrachloride	950	U	950	50	
108-90-7	Chlorobenzene	**110**	I	950	38	
75-00-3	Chloroethane	950	U	950	73	
67-66-3	Chloroform	950	U	950	38	
74-87-3	Chloromethane	950	U	950	88	
124-48-1	Dibromochloromethane	950	U	950	38	
75-09-2	Dichloromethane	950	U	950	52	
100-41-4	Ethylbenzene	950	U	950	38	
100-42-5	Styrene	950	U	950	38	
127-18-4	Tetrachloroethene (PCE)	950	U	950	38	
108-88-3	Toluene	950	U	950	38	
79-01-6	Trichloroethene (TCE)	**4900**		950	38	
75-01-4	Vinyl Chloride	**1600**		950	54	
156-59-2	cis-1,2-Dichloroethene	**6300**		950	150	
10061-01-5	cis-1,3-Dichloropropene	950	U	950	38	
179601-23-1	m,p-Xylenes	1900	U	1900	130	
123-86-4	n-Butyl Acetate	950	U	950	38	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0909
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 20:55
Sample Name:	LC34-DPT0346-043.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-003	**Basis:**	Dry
		Percent Solids:	81.1

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8498.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	154

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	950	U	950	38	
156-60-5	trans-1,2-Dichloroethene	**53**	I	950	44	
10061-02-6	trans-1,3-Dichloropropene	950	U	950	38	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	2/23/12 20:55	
Dibromofluoromethane	104	89-119	2/23/12 20:55	
Toluene-d8	106	87-121	2/23/12 20:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0930
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-046.5-20120213		
Lab Code:	R1201033-004	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**74.3**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0930
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/27/12 22:05
Sample Name:	LC34-DPT0346-046.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-004	**Basis:**	Dry
		Percent Solids:	74.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281576
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022712\J6492.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.73

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	4.9	U	4.9	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	4.9	U	4.9	0.35	
79-00-5	1,1,2-Trichloroethane	4.9	U	4.9	0.28	
75-34-3	1,1-Dichloroethane (1,1-DCA)	4.9	U	4.9	0.27	
75-35-4	1,1-Dichloroethene (1,1-DCE)	4.9	U	4.9	0.37	
107-06-2	1,2-Dichloroethane	4.9	U	4.9	0.30	
78-87-5	1,2-Dichloropropane	4.9	U	4.9	0.36	
71-36-3	n-Butanol	250	U	250	12	
78-93-3	2-Butanone (MEK)	**3.2**	I	4.9	2.0	
591-78-6	2-Hexanone	4.9	U	4.9	1.2	
108-10-1	4-Methyl-2-pentanone	4.9	U	4.9	0.42	
67-64-1	Acetone	**18**		4.9	1.1	
71-43-2	Benzene	4.9	U	4.9	0.24	
75-27-4	Bromodichloromethane	4.9	U	4.9	0.28	
75-25-2	Bromoform	4.9	U	4.9	0.41	
74-83-9	Bromomethane	4.9	U	4.9	0.38	
75-15-0	Carbon Disulfide	**15**		4.9	0.28	
56-23-5	Carbon Tetrachloride	4.9	U	4.9	0.75	
108-90-7	Chlorobenzene	**0.41**	I	4.9	0.32	
75-00-3	Chloroethane	4.9	U	4.9	0.43	
67-66-3	Chloroform	4.9	U	4.9	0.53	
74-87-3	Chloromethane	4.9	U	4.9	0.44	
124-48-1	Dibromochloromethane	4.9	U	4.9	0.35	
75-09-2	Dichloromethane	4.9	U	4.9	0.22	
100-41-4	Ethylbenzene	4.9	U	4.9	0.42	
100-42-5	Styrene	4.9	U	4.9	0.31	
127-18-4	Tetrachloroethene (PCE)	4.9	U	4.9	0.57	
108-88-3	Toluene	**0.39**	I	4.9	0.31	
79-01-6	Trichloroethene (TCE)	**2.4**	I	4.9	0.51	
75-01-4	Vinyl Chloride	**6.5**		4.9	0.47	
156-59-2	cis-1,2-Dichloroethene	**7.5**		4.9	0.37	
10061-01-5	cis-1,3-Dichloropropene	4.9	U	4.9	0.35	
179601-23-1	m,p-Xylenes	9.8	U	9.8	0.68	
123-86-4	n-Butyl Acetate	**0.87**	I	4.9	0.45	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0930
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/27/12 22:05
Sample Name:	LC34-DPT0346-046.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-004	**Basis:**	Dry
		Percent Solids:	74.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281576
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022712\J6492.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.73

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	4.9	U	4.9	0.31	
156-60-5	trans-1,2-Dichloroethene	**0.89**	I	4.9	0.38	
10061-02-6	trans-1,3-Dichloropropene	4.9	U	4.9	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	77-128	2/27/12 22:05	
Dibromofluoromethane	97	65-136	2/27/12 22:05	
Toluene-d8	100	75-126	2/27/12 22:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0919
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-045.0-20120213		
Lab Code:	R1201033-005	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**79.6**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0919
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 16:03
Sample Name:	LC34-DPT0346-045.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-005	**Basis:**	Dry
		Percent Solids:	79.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8521.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	244

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1500	U	1500	120	
79-34-5	1,1,2,2-Tetrachloroethane	1500	U	1500	62	
79-00-5	1,1,2-Trichloroethane	1500	U	1500	71	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1500	U	1500	62	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1500	U	1500	62	
107-06-2	1,2-Dichloroethane	1500	U	1500	62	
78-87-5	1,2-Dichloropropane	1500	U	1500	77	
71-36-3	n-Butanol	77000	U	77000	4800	
78-93-3	2-Butanone (MEK)	1500	U	1500	210	
591-78-6	2-Hexanone	1500	U	1500	77	
108-10-1	4-Methyl-2-pentanone	1500	U	1500	71	
67-64-1	Acetone	1500	U	1500	350	
71-43-2	Benzene	1500	U	1500	62	
75-27-4	Bromodichloromethane	1500	U	1500	62	
75-25-2	Bromoform	1500	U	1500	74	
74-83-9	Bromomethane	1500	U	1500	130	
75-15-0	Carbon Disulfide	1500	U	1500	280	
56-23-5	Carbon Tetrachloride	1500	U	1500	80	
108-90-7	Chlorobenzene	**80**	I	1500	62	
75-00-3	Chloroethane	1500	U	1500	120	
67-66-3	Chloroform	1500	U	1500	62	
74-87-3	Chloromethane	1500	U	1500	150	
124-48-1	Dibromochloromethane	1500	U	1500	62	
75-09-2	Dichloromethane	1500	U	1500	83	
100-41-4	Ethylbenzene	1500	U	1500	62	
100-42-5	Styrene	1500	U	1500	62	
127-18-4	Tetrachloroethene (PCE)	1500	U	1500	62	
108-88-3	Toluene	1500	U	1500	62	
79-01-6	Trichloroethene (TCE)	**4300**		1500	62	
75-01-4	Vinyl Chloride	**1700**		1500	86	
156-59-2	cis-1,2-Dichloroethene	**6200**		1500	240	
10061-01-5	cis-1,3-Dichloropropene	1500	U	1500	62	
179601-23-1	m,p-Xylenes	3100	U	3100	210	
123-86-4	n-Butyl Acetate	1500	U	1500	62	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0919
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 16:03
Sample Name:	LC34-DPT0346-045.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-005	**Basis:**	Dry
		Percent Solids:	79.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8521.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	244

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	1500	U	1500	62	
156-60-5	trans-1,2-Dichloroethene	1500	U	1500	71	
10061-02-6	trans-1,3-Dichloropropene	1500	U	1500	62	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	2/24/12 16:03	
Dibromofluoromethane	103	89-119	2/24/12 16:03	
Toluene-d8	106	87-121	2/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0942
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-048.0-20120213		
Lab Code:	R1201033-006	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.0**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0942
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 16:33
Sample Name:	LC34-DPT0346-048.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-006	**Basis:**	Dry
		Percent Solids:	72.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8522.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	151.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1100	U	1100	76	
79-34-5	1,1,2,2-Tetrachloroethane	1100	U	1100	43	
79-00-5	1,1,2-Trichloroethane	1100	U	1100	49	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1100	U	1100	43	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1100	U	1100	43	
107-06-2	1,2-Dichloroethane	1100	U	1100	43	
78-87-5	1,2-Dichloropropane	1100	U	1100	53	
71-36-3	n-Butanol	53000	U	53000	3300	
78-93-3	2-Butanone (MEK)	1100	U	1100	140	
591-78-6	2-Hexanone	1100	U	1100	53	
108-10-1	4-Methyl-2-pentanone	1100	U	1100	49	
67-64-1	Acetone	1100	U	1100	240	
71-43-2	Benzene	1100	U	1100	43	
75-27-4	Bromodichloromethane	1100	U	1100	43	
75-25-2	Bromoform	1100	U	1100	51	
74-83-9	Bromomethane	1100	U	1100	87	
75-15-0	Carbon Disulfide	1100	U	1100	190	
56-23-5	Carbon Tetrachloride	1100	U	1100	55	
108-90-7	Chlorobenzene	**180**	I	1100	43	
75-00-3	Chloroethane	1100	U	1100	80	
67-66-3	Chloroform	1100	U	1100	43	
74-87-3	Chloromethane	1100	U	1100	97	
124-48-1	Dibromochloromethane	1100	U	1100	43	
75-09-2	Dichloromethane	1100	U	1100	57	
100-41-4	Ethylbenzene	1100	U	1100	43	
100-42-5	Styrene	1100	U	1100	43	
127-18-4	Tetrachloroethene (PCE)	1100	U	1100	43	
108-88-3	Toluene	1100	U	1100	43	
79-01-6	Trichloroethene (TCE)	**8000**		1100	43	
75-01-4	Vinyl Chloride	**110**	I	1100	59	
156-59-2	cis-1,2-Dichloroethene	**23000**		1100	170	
10061-01-5	cis-1,3-Dichloropropene	1100	U	1100	43	
179601-23-1	m,p-Xylenes	2100	U	2100	150	
123-86-4	n-Butyl Acetate	1100	U	1100	43	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0942
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 16:33
Sample Name:	LC34-DPT0346-048.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-006	**Basis:**	Dry
		Percent Solids:	72.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8522.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	151.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	1100	U	1100	43	
156-60-5	trans-1,2-Dichloroethene	**130**	I	1100	49	
10061-02-6	trans-1,3-Dichloropropene	1100	U	1100	43	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	2/24/12 16:33	
Dibromofluoromethane	102	89-119	2/24/12 16:33	
Toluene-d8	106	87-121	2/24/12 16:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0953
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-053.0-20120213		
Lab Code:	R1201033-007	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	72.7		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0953
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 20:55
Sample Name:	LC34-DPT0346-053.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-007	**Basis:**	Dry
		Percent Solids:	72.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281378
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022412\J6444.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.89

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	6.1	U	6.1	0.37	
79-34-5	1,1,2,2-Tetrachloroethane	6.1	U	6.1	0.43	
79-00-5	1,1,2-Trichloroethane	6.1	U	6.1	0.35	
75-34-3	1,1-Dichloroethane (1,1-DCA)	6.1	U	6.1	0.34	
75-35-4	1,1-Dichloroethene (1,1-DCE)	6.1	U	6.1	0.46	
107-06-2	1,2-Dichloroethane	6.1	U	6.1	0.37	
78-87-5	1,2-Dichloropropane	6.1	U	6.1	0.45	
71-36-3	n-Butanol	310	U	310	15	
78-93-3	2-Butanone (MEK)	6.1	U	6.1	2.5	
591-78-6	2-Hexanone	6.1	U	6.1	1.5	
108-10-1	4-Methyl-2-pentanone	6.1	U	6.1	0.52	
67-64-1	Acetone	**9.7**	V	6.1	1.4	
71-43-2	Benzene	6.1	U	6.1	0.30	
75-27-4	Bromodichloromethane	6.1	U	6.1	0.35	
75-25-2	Bromoform	6.1	U	6.1	0.51	
74-83-9	Bromomethane	6.1	U	6.1	0.47	
75-15-0	Carbon Disulfide	**20**		6.1	0.35	
56-23-5	Carbon Tetrachloride	6.1	U	6.1	0.94	
108-90-7	Chlorobenzene	**0.84**	I	6.1	0.40	
75-00-3	Chloroethane	6.1	U	6.1	0.53	
67-66-3	Chloroform	6.1	U	6.1	0.65	
74-87-3	Chloromethane	6.1	U	6.1	0.54	
124-48-1	Dibromochloromethane	6.1	U	6.1	0.43	
75-09-2	Dichloromethane	6.1	U	6.1	0.27	
100-41-4	Ethylbenzene	6.1	U	6.1	0.52	
100-42-5	Styrene	6.1	U	6.1	0.38	
127-18-4	Tetrachloroethene (PCE)	6.1	U	6.1	0.70	
108-88-3	Toluene	**1.7**	I	6.1	0.38	
79-01-6	Trichloroethene (TCE)	6.1	U	6.1	0.63	
75-01-4	Vinyl Chloride	**9.8**		6.1	0.58	
156-59-2	cis-1,2-Dichloroethene	**0.59**	I	6.1	0.46	
10061-01-5	cis-1,3-Dichloropropene	6.1	U	6.1	0.43	
179601-23-1	m,p-Xylenes	12	U	12	0.85	
123-86-4	n-Butyl Acetate	6.1	U	6.1	0.56	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 0953
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 20:55
Sample Name:	LC34-DPT0346-053.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-007	**Basis:**	Dry
		Percent Solids:	72.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281378
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022412\J6444.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.89

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	6.1	U	6.1	0.38	
156-60-5	trans-1,2-Dichloroethene	0.77	I	6.1	0.47	
10061-02-6	trans-1,3-Dichloropropene	6.1	U	6.1	0.25	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	77-128	2/24/12 20:55	
Dibromofluoromethane	96	65-136	2/24/12 20:55	
Toluene-d8	104	75-126	2/24/12 20:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1006
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0346-055.0-20120213		
Lab Code:	R1201033-008	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**71.4**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1006
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 16:19
Sample Name:	LC34-DPT0346-055.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-008	**Basis:**	Dry
		Percent Solids:	71.4

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6458.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.69

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	4.8	U	4.8	0.29	
79-34-5	1,1,2,2-Tetrachloroethane	4.8	U	4.8	0.34	
79-00-5	1,1,2-Trichloroethane	4.8	U	4.8	0.28	
75-34-3	1,1-Dichloroethane (1,1-DCA)	4.8	U	4.8	0.27	
75-35-4	1,1-Dichloroethene (1,1-DCE)	4.8	U	4.8	0.36	
107-06-2	1,2-Dichloroethane	4.8	U	4.8	0.29	
78-87-5	1,2-Dichloropropane	4.8	U	4.8	0.35	
71-36-3	n-Butanol	240	U	240	12	
78-93-3	2-Butanone (MEK)	4.8	U	4.8	2.0	
591-78-6	2-Hexanone	4.8	U	4.8	1.2	
108-10-1	4-Methyl-2-pentanone	4.8	U	4.8	0.41	
67-64-1	Acetone	**7.4**		4.8	1.1	
71-43-2	Benzene	4.8	U	4.8	0.24	
75-27-4	Bromodichloromethane	4.8	U	4.8	0.28	
75-25-2	Bromoform	4.8	U	4.8	0.40	
74-83-9	Bromomethane	4.8	U	4.8	0.37	
75-15-0	Carbon Disulfide	**10**		4.8	0.28	
56-23-5	Carbon Tetrachloride	4.8	U	4.8	0.74	
108-90-7	Chlorobenzene	**0.41**	I	4.8	0.31	
75-00-3	Chloroethane	4.8	U	4.8	0.42	
67-66-3	Chloroform	4.8	U	4.8	0.52	
74-87-3	Chloromethane	4.8	U	4.8	0.43	
124-48-1	Dibromochloromethane	4.8	U	4.8	0.34	
75-09-2	Dichloromethane	4.8	U	4.8	0.22	
100-41-4	Ethylbenzene	4.8	U	4.8	0.41	
100-42-5	Styrene	4.8	U	4.8	0.30	
127-18-4	Tetrachloroethene (PCE)	4.8	U	4.8	0.56	
108-88-3	Toluene	**0.56**	I	4.8	0.30	
79-01-6	Trichloroethene (TCE)	4.8	U	4.8	0.50	
75-01-4	Vinyl Chloride	**3.3**	I	4.8	0.46	
156-59-2	cis-1,2-Dichloroethene	**1.0**	I	4.8	0.36	
10061-01-5	cis-1,3-Dichloropropene	4.8	U	4.8	0.34	
179601-23-1	m,p-Xylenes	9.7	U	9.7	0.67	
123-86-4	n-Butyl Acetate	4.8	U	4.8	0.44	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1006
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 16:19
Sample Name:	LC34-DPT0346-055.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-008	**Basis:**	Dry
		Percent Solids:	71.4

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6458.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.69

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	4.8	U	4.8	0.30	
156-60-5	trans-1,2-Dichloroethene	**0.60**	I	4.8	0.37	
10061-02-6	trans-1,3-Dichloropropene	4.8	U	4.8	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	77-128	2/25/12 16:19	
Dibromofluoromethane	94	65-136	2/25/12 16:19	
Toluene-d8	104	75-126	2/25/12 16:19	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1035
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0347-037.0-20120213		
Lab Code:	R1201033-009	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.0**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1035
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 17:03
Sample Name:	LC34-DPT0347-037.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-009	**Basis:**	Dry
		Percent Solids:	72.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8523.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	103.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	720	U	720	52	
79-34-5	1,1,2,2-Tetrachloroethane	720	U	720	29	
79-00-5	1,1,2-Trichloroethane	720	U	720	34	
75-34-3	1,1-Dichloroethane (1,1-DCA)	720	U	720	29	
75-35-4	1,1-Dichloroethene (1,1-DCE)	720	U	720	29	
107-06-2	1,2-Dichloroethane	720	U	720	29	
78-87-5	1,2-Dichloropropane	720	U	720	36	
71-36-3	n-Butanol	36000	U	36000	2300	
78-93-3	2-Butanone (MEK)	720	U	720	95	
591-78-6	2-Hexanone	720	U	720	36	
108-10-1	4-Methyl-2-pentanone	720	U	720	34	
67-64-1	Acetone	720	U	720	170	
71-43-2	Benzene	720	U	720	29	
75-27-4	Bromodichloromethane	720	U	720	29	
75-25-2	Bromoform	720	U	720	35	
74-83-9	Bromomethane	720	U	720	59	
75-15-0	Carbon Disulfide	720	U	720	130	
56-23-5	Carbon Tetrachloride	720	U	720	38	
108-90-7	Chlorobenzene	**81**	I	720	29	
75-00-3	Chloroethane	720	U	720	55	
67-66-3	Chloroform	720	U	720	29	
74-87-3	Chloromethane	720	U	720	67	
124-48-1	Dibromochloromethane	720	U	720	29	
75-09-2	Dichloromethane	720	U	720	39	
100-41-4	Ethylbenzene	720	U	720	29	
100-42-5	Styrene	720	U	720	29	
127-18-4	Tetrachloroethene (PCE)	720	U	720	29	
108-88-3	Toluene	720	U	720	29	
79-01-6	Trichloroethene (TCE)	**4400**		720	29	
75-01-4	Vinyl Chloride	**850**		720	41	
156-59-2	cis-1,2-Dichloroethene	**840**		720	120	
10061-01-5	cis-1,3-Dichloropropene	720	U	720	29	
179601-23-1	m,p-Xylenes	1400	U	1400	97	
123-86-4	n-Butyl Acetate	720	U	720	29	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1035
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 17:03
Sample Name:	LC34-DPT0347-037.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-009	**Basis:**	Dry
		Percent Solids:	72.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8523.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	103.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	720	U	720	29	
156-60-5	trans-1,2-Dichloroethene	720	U	720	34	
10061-02-6	trans-1,3-Dichloropropene	720	U	720	29	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	2/24/12 17:03	
Dibromofluoromethane	103	89-119	2/24/12 17:03	
Toluene-d8	106	87-121	2/24/12 17:03	

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Collected: 2/13/12 1045
Date Received: 2/15/12

Sample Name: LC34-DPT0347-040.0-20120213
Lab Code: R1201033-010

Basis: As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**79.3**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1045
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 17:33
Sample Name:	LC34-DPT0347-040.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-010	**Basis:**	Dry
		Percent Solids:	79.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8524.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	102.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	650	U	650	47	
79-34-5	1,1,2,2-Tetrachloroethane	650	U	650	26	
79-00-5	1,1,2-Trichloroethane	650	U	650	30	
75-34-3	1,1-Dichloroethane (1,1-DCA)	650	U	650	26	
75-35-4	1,1-Dichloroethene (1,1-DCE)	650	U	650	26	
107-06-2	1,2-Dichloroethane	650	U	650	26	
78-87-5	1,2-Dichloropropane	650	U	650	33	
71-36-3	n-Butanol	32000	U	32000	2000	
78-93-3	2-Butanone (MEK)	650	U	650	86	
591-78-6	2-Hexanone	650	U	650	33	
108-10-1	4-Methyl-2-pentanone	650	U	650	30	
67-64-1	Acetone	650	U	650	150	
71-43-2	Benzene	650	U	650	26	
75-27-4	Bromodichloromethane	650	U	650	26	
75-25-2	Bromoform	650	U	650	32	
74-83-9	Bromomethane	650	U	650	53	
75-15-0	Carbon Disulfide	650	U	650	120	
56-23-5	Carbon Tetrachloride	650	U	650	34	
108-90-7	Chlorobenzene	**93**	I	650	26	
75-00-3	Chloroethane	650	U	650	50	
67-66-3	Chloroform	650	U	650	26	
74-87-3	Chloromethane	650	U	650	60	
124-48-1	Dibromochloromethane	650	U	650	26	
75-09-2	Dichloromethane	650	U	650	35	
100-41-4	Ethylbenzene	650	U	650	26	
100-42-5	Styrene	650	U	650	26	
127-18-4	Tetrachloroethene (PCE)	650	U	650	26	
108-88-3	Toluene	650	U	650	26	
79-01-6	Trichloroethene (TCE)	**2600**		650	26	
75-01-4	Vinyl Chloride	**690**		650	37	
156-59-2	cis-1,2-Dichloroethene	**680**		650	110	
10061-01-5	cis-1,3-Dichloropropene	650	U	650	26	
179601-23-1	m,p-Xylenes	1300	U	1300	87	
123-86-4	n-Butyl Acetate	650	U	650	26	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1045
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 17:33
Sample Name:	LC34-DPT0347-040.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-010	**Basis:**	Dry
		Percent Solids:	79.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8524.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	102.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	650	U	650	26	
156-60-5	trans-1,2-Dichloroethene	650	U	650	30	
10061-02-6	trans-1,3-Dichloropropene	650	U	650	26	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	2/24/12 17:33	
Dibromofluoromethane	103	89-119	2/24/12 17:33	
Toluene-d8	105	87-121	2/24/12 17:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1055
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0347-045.5-20120213		
Lab Code:	R1201033-011	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	72.7		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1055
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 19:54
Sample Name:	LC34-DPT0347-045.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-011	**Basis:**	Dry
		Percent Solids:	72.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6464.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.8

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.5	U	5.5	0.34	
79-34-5	1,1,2,2-Tetrachloroethane	5.5	U	5.5	0.39	
79-00-5	1,1,2-Trichloroethane	5.5	U	5.5	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.5	U	5.5	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.5	U	5.5	0.41	
107-06-2	1,2-Dichloroethane	5.5	U	5.5	0.34	
78-87-5	1,2-Dichloropropane	5.5	U	5.5	0.40	
71-36-3	n-Butanol	280	U	280	13	
78-93-3	2-Butanone (MEK)	**2.8**	I	5.5	2.3	
591-78-6	2-Hexanone	5.5	U	5.5	1.3	
108-10-1	4-Methyl-2-pentanone	5.5	U	5.5	0.47	
67-64-1	Acetone	**20**		5.5	1.3	
71-43-2	Benzene	5.5	U	5.5	0.27	
75-27-4	Bromodichloromethane	5.5	U	5.5	0.31	
75-25-2	Bromoform	5.5	U	5.5	0.46	
74-83-9	Bromomethane	5.5	U	5.5	0.42	
75-15-0	Carbon Disulfide	**27**		5.5	0.31	
56-23-5	Carbon Tetrachloride	5.5	U	5.5	0.84	
108-90-7	Chlorobenzene	5.5	U	5.5	0.36	
75-00-3	Chloroethane	5.5	U	5.5	0.48	
67-66-3	Chloroform	5.5	U	5.5	0.59	
74-87-3	Chloromethane	5.5	U	5.5	0.54	
124-48-1	Dibromochloromethane	5.5	U	5.5	0.39	
75-09-2	Dichloromethane	**0.33**	I	5.5	0.25	
100-41-4	Ethylbenzene	5.5	U	5.5	0.47	
100-42-5	Styrene	5.5	U	5.5	0.35	
127-18-4	Tetrachloroethene (PCE)	5.5	U	5.5	0.63	
108-88-3	Toluene	**1.1**	I	5.5	0.35	
79-01-6	Trichloroethene (TCE)	**170**		5.5	0.57	
75-01-4	Vinyl Chloride	**22**		5.5	0.52	
156-59-2	cis-1,2-Dichloroethene	**130**		5.5	0.41	
10061-01-5	cis-1,3-Dichloropropene	5.5	U	5.5	0.39	
179601-23-1	m,p-Xylenes	11	U	11	0.76	
123-86-4	n-Butyl Acetate	**1.1**	I	5.5	0.50	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1055
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 19:54
Sample Name:	LC34-DPT0347-045.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-011	**Basis:**	Dry
		Percent Solids:	72.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6464.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.8

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.5	U	5.5	0.35	
156-60-5	trans-1,2-Dichloroethene	**2.3**	I	5.5	0.42	
10061-02-6	trans-1,3-Dichloropropene	5.5	U	5.5	0.23	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	77-128	2/25/12 19:54	
Dibromofluoromethane	97	65-136	2/25/12 19:54	
Toluene-d8	105	75-126	2/25/12 19:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1107
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0347-047.0-20120213		
Lab Code:	R1201033-012	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**76.1**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1107
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 19:18
Sample Name:	LC34-DPT0347-047.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-012	**Basis:**	Dry
		Percent Solids:	76.1

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8525.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	382.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	190	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	110	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	120	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	110	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	110	
107-06-2	1,2-Dichloroethane	2500	U	2500	110	
78-87-5	1,2-Dichloropropane	2500	U	2500	130	
71-36-3	n-Butanol	130000	U	130000	7800	
78-93-3	2-Butanone (MEK)	2500	U	2500	340	
591-78-6	2-Hexanone	2500	U	2500	130	
108-10-1	4-Methyl-2-pentanone	2500	U	2500	120	
67-64-1	Acetone	2500	U	2500	570	
71-43-2	Benzene	2500	U	2500	110	
75-27-4	Bromodichloromethane	2500	U	2500	110	
75-25-2	Bromoform	2500	U	2500	130	
74-83-9	Bromomethane	2500	U	2500	210	
75-15-0	Carbon Disulfide	2500	U	2500	460	
56-23-5	Carbon Tetrachloride	2500	U	2500	140	
108-90-7	Chlorobenzene	**710**	I	2500	110	
75-00-3	Chloroethane	2500	U	2500	200	
67-66-3	Chloroform	2500	U	2500	110	
74-87-3	Chloromethane	2500	U	2500	240	
124-48-1	Dibromochloromethane	2500	U	2500	110	
75-09-2	Dichloromethane	2500	U	2500	140	
100-41-4	Ethylbenzene	2500	U	2500	110	
100-42-5	Styrene	2500	U	2500	110	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	110	
108-88-3	Toluene	2500	U	2500	110	
79-01-6	Trichloroethene (TCE)	**73000**		2500	110	
75-01-4	Vinyl Chloride	**170**	I	2500	150	
156-59-2	cis-1,2-Dichloroethene	**7500**		2500	400	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	110	
179601-23-1	m,p-Xylenes	5000	U	5000	340	
123-86-4	n-Butyl Acetate	2500	U	2500	110	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1107
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 19:18
Sample Name:	LC34-DPT0347-047.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-012	**Basis:**	Dry
		Percent Solids:	76.1

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8525.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	382.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	2500	U	2500	110	
156-60-5	trans-1,2-Dichloroethene	2500	U	2500	120	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	110	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	2/24/12 19:18	
Dibromofluoromethane	104	89-119	2/24/12 19:18	
Toluene-d8	106	87-121	2/24/12 19:18	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1115
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0347-050.0-20120213		
Lab Code:	R1201033-013	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**69.5**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1115
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 19:48
Sample Name:	LC34-DPT0347-050.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-013	**Basis:**	Dry
		Percent Solids:	69.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8526.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	502

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	3600	U	3600	270	
79-34-5	1,1,2,2-Tetrachloroethane	3600	U	3600	150	
79-00-5	1,1,2-Trichloroethane	3600	U	3600	170	
75-34-3	1,1-Dichloroethane (1,1-DCA)	3600	U	3600	150	
75-35-4	1,1-Dichloroethene (1,1-DCE)	3600	U	3600	150	
107-06-2	1,2-Dichloroethane	3600	U	3600	150	
78-87-5	1,2-Dichloropropane	3600	U	3600	190	
71-36-3	n-Butanol	180000	U	180000	12000	
78-93-3	2-Butanone (MEK)	3600	U	3600	480	
591-78-6	2-Hexanone	3600	U	3600	190	
108-10-1	4-Methyl-2-pentanone	3600	U	3600	170	
67-64-1	Acetone	3600	U	3600	810	
71-43-2	Benzene	3600	U	3600	150	
75-27-4	Bromodichloromethane	3600	U	3600	150	
75-25-2	Bromoform	3600	U	3600	180	
74-83-9	Bromomethane	3600	U	3600	300	
75-15-0	Carbon Disulfide	3600	U	3600	660	
56-23-5	Carbon Tetrachloride	3600	U	3600	190	
108-90-7	Chlorobenzene	**270**	I	3600	150	
75-00-3	Chloroethane	3600	U	3600	280	
67-66-3	Chloroform	3600	U	3600	150	
74-87-3	Chloromethane	3600	U	3600	340	
124-48-1	Dibromochloromethane	3600	U	3600	150	
75-09-2	Dichloromethane	3600	U	3600	200	
100-41-4	Ethylbenzene	3600	U	3600	150	
100-42-5	Styrene	3600	U	3600	150	
127-18-4	Tetrachloroethene (PCE)	3600	U	3600	150	
108-88-3	Toluene	3600	U	3600	150	
79-01-6	Trichloroethene (TCE)	**69000**		3600	150	
75-01-4	Vinyl Chloride	3600	U	3600	210	
156-59-2	cis-1,2-Dichloroethene	**3600**	I	3600	570	
10061-01-5	cis-1,3-Dichloropropene	3600	U	3600	150	
179601-23-1	m,p-Xylenes	7200	U	7200	490	
123-86-4	n-Butyl Acetate	3600	U	3600	150	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1115
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 19:48
Sample Name:	LC34-DPT0347-050.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-013	**Basis:**	Dry
		Percent Solids:	69.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8526.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	502

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	3600	U	3600	150	
156-60-5	trans-1,2-Dichloroethene	3600	U	3600	170	
10061-02-6	trans-1,3-Dichloropropene	3600	U	3600	150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	2/24/12 19:48	
Dibromofluoromethane	103	89-119	2/24/12 19:48	
Toluene-d8	106	87-121	2/24/12 19:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1126
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0347-050.5-20120213		
Lab Code:	R1201033-014	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**76.5**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1126
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 16:55
Sample Name:	LC34-DPT0347-050.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-014	**Basis:**	Dry
		Percent Solids:	76.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6459.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.83

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.4	U	5.4	0.33	
79-34-5	1,1,2,2-Tetrachloroethane	5.4	U	5.4	0.38	
79-00-5	1,1,2-Trichloroethane	5.4	U	5.4	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.4	U	5.4	0.30	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.4	U	5.4	0.41	
107-06-2	1,2-Dichloroethane	5.4	U	5.4	0.33	
78-87-5	1,2-Dichloropropane	5.4	U	5.4	0.40	
71-36-3	n-Butanol	270	U	270	13	
78-93-3	2-Butanone (MEK)	**2.7**	I	5.4	2.2	
591-78-6	2-Hexanone	5.4	U	5.4	1.3	
108-10-1	4-Methyl-2-pentanone	5.4	U	5.4	0.46	
67-64-1	Acetone	**14**		5.4	1.2	
71-43-2	Benzene	5.4	U	5.4	0.27	
75-27-4	Bromodichloromethane	5.4	U	5.4	0.31	
75-25-2	Bromoform	5.4	U	5.4	0.45	
74-83-9	Bromomethane	5.4	U	5.4	0.42	
75-15-0	Carbon Disulfide	**23**		5.4	0.31	
56-23-5	Carbon Tetrachloride	5.4	U	5.4	0.83	
108-90-7	Chlorobenzene	5.4	U	5.4	0.35	
75-00-3	Chloroethane	5.4	U	5.4	0.47	
67-66-3	Chloroform	5.4	U	5.4	0.58	
74-87-3	Chloromethane	5.4	U	5.4	0.48	
124-48-1	Dibromochloromethane	5.4	U	5.4	0.38	
75-09-2	Dichloromethane	5.4	U	5.4	0.24	
100-41-4	Ethylbenzene	5.4	U	5.4	0.46	
100-42-5	Styrene	5.4	U	5.4	0.34	
127-18-4	Tetrachloroethene (PCE)	5.4	U	5.4	0.62	
108-88-3	Toluene	**0.59**	I	5.4	0.34	
79-01-6	Trichloroethene (TCE)	**1.6**	I	5.4	0.56	
75-01-4	Vinyl Chloride	**13**		5.4	0.51	
156-59-2	cis-1,2-Dichloroethene	**1.7**	I	5.4	0.41	
10061-01-5	cis-1,3-Dichloropropene	5.4	U	5.4	0.38	
179601-23-1	m,p-Xylenes	11	U	11	0.75	
123-86-4	n-Butyl Acetate	5.4	U	5.4	0.49	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1126
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 16:55
Sample Name:	LC34-DPT0347-050.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-014	**Basis:**	Dry
		Percent Solids:	76.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6459.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.83

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.4	U	5.4	0.34	
156-60-5	trans-1,2-Dichloroethene	5.4	U	5.4	0.42	
10061-02-6	trans-1,3-Dichloropropene	5.4	U	5.4	0.22	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	77-128	2/25/12 16:55	
Dibromofluoromethane	92	65-136	2/25/12 16:55	
Toluene-d8	106	75-126	2/25/12 16:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1135
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0347-053.0-20120213		
Lab Code:	R1201033-015	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**81.2**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1135
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 17:31
Sample Name:	LC34-DPT0347-053.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-015	**Basis:**	Dry
		Percent Solids:	81.2

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6460.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.84

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.2	U	5.2	0.32	
79-34-5	1,1,2,2-Tetrachloroethane	5.2	U	5.2	0.37	
79-00-5	1,1,2-Trichloroethane	5.2	U	5.2	0.29	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.2	U	5.2	0.28	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.2	U	5.2	0.39	
107-06-2	1,2-Dichloroethane	5.2	U	5.2	0.32	
78-87-5	1,2-Dichloropropane	5.2	U	5.2	0.38	
71-36-3	n-Butanol	260	U	260	12	
78-93-3	2-Butanone (MEK)	**2.9**	I	5.2	2.1	
591-78-6	2-Hexanone	5.2	U	5.2	1.2	
108-10-1	4-Methyl-2-pentanone	5.2	U	5.2	0.44	
67-64-1	Acetone	**12**		5.2	1.2	
71-43-2	Benzene	5.2	U	5.2	0.25	
75-27-4	Bromodichloromethane	5.2	U	5.2	0.29	
75-25-2	Bromoform	5.2	U	5.2	0.43	
74-83-9	Bromomethane	5.2	U	5.2	0.40	
75-15-0	Carbon Disulfide	**34**		5.2	0.29	
56-23-5	Carbon Tetrachloride	5.2	U	5.2	0.79	
108-90-7	Chlorobenzene	5.2	U	5.2	0.34	
75-00-3	Chloroethane	5.2	U	5.2	0.45	
67-66-3	Chloroform	5.2	U	5.2	0.55	
74-87-3	Chloromethane	5.2	U	5.2	0.46	
124-48-1	Dibromochloromethane	5.2	U	5.2	0.37	
75-09-2	Dichloromethane	5.2	U	5.2	0.23	
100-41-4	Ethylbenzene	5.2	U	5.2	0.44	
100-42-5	Styrene	5.2	U	5.2	0.33	
127-18-4	Tetrachloroethene (PCE)	5.2	U	5.2	0.59	
108-88-3	Toluene	**0.55**	I	5.2	0.33	
79-01-6	Trichloroethene (TCE)	**1.6**	I	5.2	0.53	
75-01-4	Vinyl Chloride	**12**		5.2	0.49	
156-59-2	cis-1,2-Dichloroethene	**1.4**	I	5.2	0.39	
10061-01-5	cis-1,3-Dichloropropene	5.2	U	5.2	0.37	
179601-23-1	m,p-Xylenes	10	U	10	0.72	
123-86-4	n-Butyl Acetate	5.2	U	5.2	0.47	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1135
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 17:31
Sample Name:	LC34-DPT0347-053.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-015	**Basis:**	Dry
		Percent Solids:	81.2

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6460.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.84

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.2	U	5.2	0.33	
156-60-5	trans-1,2-Dichloroethene	**0.52**	I	5.2	0.40	
10061-02-6	trans-1,3-Dichloropropene	5.2	U	5.2	0.21	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	77-128	2/25/12 17:31	
Dibromofluoromethane	95	65-136	2/25/12 17:31	
Toluene-d8	101	75-126	2/25/12 17:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1250
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-034.5-20120213		
Lab Code:	R1201033-016	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**82.3**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1250
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 20:47
Sample Name:	LC34-DPT0348-034.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-016	**Basis:**	Dry
		Percent Solids:	82.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8528.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	106.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	650	U	650	47	
79-34-5	1,1,2,2-Tetrachloroethane	650	U	650	26	
79-00-5	1,1,2-Trichloroethane	650	U	650	30	
75-34-3	1,1-Dichloroethane (1,1-DCA)	650	U	650	26	
75-35-4	1,1-Dichloroethene (1,1-DCE)	650	U	650	26	
107-06-2	1,2-Dichloroethane	650	U	650	26	
78-87-5	1,2-Dichloropropane	650	U	650	33	
71-36-3	n-Butanol	32000	U	32000	2000	
78-93-3	2-Butanone (MEK)	650	U	650	86	
591-78-6	2-Hexanone	650	U	650	33	
108-10-1	4-Methyl-2-pentanone	650	U	650	30	
67-64-1	Acetone	650	U	650	150	
71-43-2	Benzene	650	U	650	26	
75-27-4	Bromodichloromethane	650	U	650	26	
75-25-2	Bromoform	650	U	650	32	
74-83-9	Bromomethane	650	U	650	54	
75-15-0	Carbon Disulfide	650	U	650	120	
56-23-5	Carbon Tetrachloride	650	U	650	34	
108-90-7	Chlorobenzene	**72**	I	650	26	
75-00-3	Chloroethane	650	U	650	50	
67-66-3	Chloroform	650	U	650	26	
74-87-3	Chloromethane	650	U	650	60	
124-48-1	Dibromochloromethane	650	U	650	26	
75-09-2	Dichloromethane	650	U	650	35	
100-41-4	Ethylbenzene	650	U	650	26	
100-42-5	Styrene	650	U	650	26	
127-18-4	Tetrachloroethene (PCE)	650	U	650	26	
108-88-3	Toluene	650	U	650	26	
79-01-6	Trichloroethene (TCE)	**62**	I	650	26	
75-01-4	Vinyl Chloride	**290**	I	650	37	
156-59-2	cis-1,2-Dichloroethene	**5800**		650	110	
10061-01-5	cis-1,3-Dichloropropene	650	U	650	26	
179601-23-1	m,p-Xylenes	1300	U	1300	87	
123-86-4	n-Butyl Acetate	650	U	650	26	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1250
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 20:47
Sample Name:	LC34-DPT0348-034.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-016	**Basis:**	Dry
		Percent Solids:	82.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8528.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	106.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	650	U	650	26	
156-60-5	trans-1,2-Dichloroethene	**120**	I	650	30	
10061-02-6	trans-1,3-Dichloropropene	650	U	650	26	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	2/24/12 20:47	
Dibromofluoromethane	103	89-119	2/24/12 20:47	
Toluene-d8	106	87-121	2/24/12 20:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1300
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-037.0-20120213		
Lab Code:	R1201033-017	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**68.3**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1300
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 17:33
Sample Name:	LC34-DPT0348-037.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-017	**Basis:**	Dry
		Percent Solids:	68.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6591.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	77

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	560	U	560	41	
79-34-5	1,1,2,2-Tetrachloroethane	560	U	560	23	
79-00-5	1,1,2-Trichloroethane	560	U	560	26	
75-34-3	1,1-Dichloroethane (1,1-DCA)	560	U	560	23	
75-35-4	1,1-Dichloroethene (1,1-DCE)	560	U	560	23	
107-06-2	1,2-Dichloroethane	560	U	560	23	
78-87-5	1,2-Dichloropropane	560	U	560	29	
71-36-3	n-Butanol	28000	U	28000	1800	
78-93-3	2-Butanone (MEK)	560	U	560	75	
591-78-6	2-Hexanone	560	U	560	29	
108-10-1	4-Methyl-2-pentanone	560	U	560	26	
67-64-1	Acetone	560	U	560	130	
71-43-2	Benzene	560	U	560	23	
75-27-4	Bromodichloromethane	560	U	560	23	
75-25-2	Bromoform	560	U	560	28	
74-83-9	Bromomethane	560	U	560	47	
75-15-0	Carbon Disulfide	560	U	560	110	
56-23-5	Carbon Tetrachloride	560	U	560	30	
108-90-7	Chlorobenzene	**73**	I	560	23	
75-00-3	Chloroethane	560	U	560	43	
67-66-3	Chloroform	560	U	560	23	
74-87-3	Chloromethane	560	U	560	52	
124-48-1	Dibromochloromethane	560	U	560	23	
75-09-2	Dichloromethane	560	U	560	31	
100-41-4	Ethylbenzene	560	U	560	23	
100-42-5	Styrene	560	U	560	23	
127-18-4	Tetrachloroethene (PCE)	560	U	560	23	
108-88-3	Toluene	560	U	560	23	
79-01-6	Trichloroethene (TCE)	**30**	I	560	23	
75-01-4	Vinyl Chloride	**3700**		560	32	
156-59-2	cis-1,2-Dichloroethene	**260**	I	560	88	
10061-01-5	cis-1,3-Dichloropropene	560	U	560	23	
179601-23-1	m,p-Xylenes	1100	U	1100	76	
123-86-4	n-Butyl Acetate	560	U	560	23	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1300
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 17:33
Sample Name:	LC34-DPT0348-037.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-017	**Basis:**	Dry
		Percent Solids:	68.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6591.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	77

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	560	U	560	23	
156-60-5	trans-1,2-Dichloroethene	**52**	I	560	26	
10061-02-6	trans-1,3-Dichloropropene	560	U	560	23	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	2/25/12 17:33	
Dibromofluoromethane	97	89-119	2/25/12 17:33	
Toluene-d8	95	87-121	2/25/12 17:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1311
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-040.0-20120213		
Lab Code:	R1201033-018	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**86.5**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1311
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 18:04
Sample Name:	LC34-DPT0348-040.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-018	**Basis:**	Dry
		Percent Solids:	86.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6592.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	120.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	700	U	700	51	
79-34-5	1,1,2,2-Tetrachloroethane	700	U	700	28	
79-00-5	1,1,2-Trichloroethane	700	U	700	33	
75-34-3	1,1-Dichloroethane (1,1-DCA)	700	U	700	28	
75-35-4	1,1-Dichloroethene (1,1-DCE)	700	U	700	28	
107-06-2	1,2-Dichloroethane	700	U	700	28	
78-87-5	1,2-Dichloropropane	700	U	700	35	
71-36-3	n-Butanol	35000	U	35000	2200	
78-93-3	2-Butanone (MEK)	700	U	700	92	
591-78-6	2-Hexanone	700	U	700	35	
108-10-1	4-Methyl-2-pentanone	700	U	700	33	
67-64-1	Acetone	700	U	700	160	
71-43-2	Benzene	700	U	700	28	
75-27-4	Bromodichloromethane	700	U	700	28	
75-25-2	Bromoform	700	U	700	34	
74-83-9	Bromomethane	**61**	I	700	58	
75-15-0	Carbon Disulfide	700	U	700	130	
56-23-5	Carbon Tetrachloride	700	U	700	37	
108-90-7	Chlorobenzene	**77**	I	700	28	
75-00-3	Chloroethane	700	U	700	53	
67-66-3	Chloroform	700	U	700	28	
74-87-3	Chloromethane	700	U	700	65	
124-48-1	Dibromochloromethane	700	U	700	28	
75-09-2	Dichloromethane	700	U	700	38	
100-41-4	Ethylbenzene	700	U	700	28	
100-42-5	Styrene	700	U	700	28	
127-18-4	Tetrachloroethene (PCE)	700	U	700	28	
108-88-3	Toluene	700	U	700	28	
79-01-6	Trichloroethene (TCE)	**670**	I	700	28	
75-01-4	Vinyl Chloride	**900**		700	40	
156-59-2	cis-1,2-Dichloroethene	**2500**		700	110	
10061-01-5	cis-1,3-Dichloropropene	700	U	700	28	
179601-23-1	m,p-Xylenes	1400	U	1400	94	
123-86-4	n-Butyl Acetate	700	U	700	28	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1311
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 18:04
Sample Name:	LC34-DPT0348-040.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-018	**Basis:**	Dry
		Percent Solids:	86.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6592.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	120.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	700	U	700	28	
156-60-5	trans-1,2-Dichloroethene	700	U	700	33	
10061-02-6	trans-1,3-Dichloropropene	700	U	700	28	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	2/25/12 18:04	
Dibromofluoromethane	97	89-119	2/25/12 18:04	
Toluene-d8	97	87-121	2/25/12 18:04	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-045.5-20120213		
Lab Code:	R1201033-019	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.6**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-045.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-019	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	730	U	730	45	106.5	NA	2/25/12 18:34		281447	
1,1,2,2-Tetrachloroethane	730	U	730	52	106.5	NA	2/25/12 18:34		281447	
1,1,2-Trichloroethane	730	U	730	42	106.5	NA	2/25/12 18:34		281447	
1,1-Dichloroethane (1,1-DCA)	730	U	730	40	106.5	NA	2/25/12 18:34		281447	
1,1-Dichloroethene (1,1-DCE)	730	U	730	55	106.5	NA	2/25/12 18:34		281447	
1,2-Dichloroethane	730	U	730	45	106.5	NA	2/25/12 18:34		281447	
1,2-Dichloropropane	730	U	730	53	106.5	NA	2/25/12 18:34		281447	
n-Butanol	37000	U	37000	1700	106.5	NA	2/25/12 18:34		281447	
2-Butanone (MEK)	730	U	730	300	106.5	NA	2/25/12 18:34		281447	
2-Hexanone	730	U	730	180	106.5	NA	2/25/12 18:34		281447	
4-Methyl-2-pentanone	730	U	730	62	106.5	NA	2/25/12 18:34		281447	
Acetone	730	U	730	170	106.5	NA	2/25/12 18:34		281447	
Benzene	730	U	730	36	106.5	NA	2/25/12 18:34		281447	
Bromodichloromethane	730	U	730	42	106.5	NA	2/25/12 18:34		281447	
Bromoform	730	U	730	61	106.5	NA	2/25/12 18:34		281447	
Bromomethane	**97**	I	730	56	106.5	NA	2/25/12 18:34		281447	
Carbon Disulfide	730	U	730	42	106.5	NA	2/25/12 18:34		281447	
Carbon Tetrachloride	730	U	730	120	106.5	NA	2/25/12 18:34		281447	
Chlorobenzene	**82**	I	730	47	106.5	NA	2/25/12 18:34		281447	
Chloroethane	730	U	730	64	106.5	NA	2/25/12 18:34		281447	
Chloroform	730	U	730	78	106.5	NA	2/25/12 18:34		281447	
Chloromethane	730	U	730	65	106.5	NA	2/25/12 18:34		281447	
Dibromochloromethane	730	U	730	52	106.5	NA	2/25/12 18:34		281447	
Dichloromethane	730	U	730	33	106.5	NA	2/25/12 18:34		281447	
Ethylbenzene	730	U	730	62	106.5	NA	2/25/12 18:34		281447	
Styrene	730	U	730	46	106.5	NA	2/25/12 18:34		281447	
Tetrachloroethene (PCE)	730	U	730	84	106.5	NA	2/25/12 18:34		281447	
Toluene	730	U	730	46	106.5	NA	2/25/12 18:34		281447	
Trichloroethene (TCE)	**160**	I	730	75	106.5	NA	2/25/12 18:34		281447	
Vinyl Chloride	**590**	I	730	69	106.5	NA	2/25/12 18:34		281447	
cis-1,2-Dichloroethene	**560**	I	730	55	106.5	NA	2/25/12 18:34		281447	
cis-1,3-Dichloropropene	730	U	730	52	106.5	NA	2/25/12 18:34		281447	
m,p-Xylenes	1500	U	1500	110	106.5	NA	2/25/12 18:34		281447	
n-Butyl Acetate	730	U	730	67	106.5	NA	2/25/12 18:34		281447	
o-Xylene	730	U	730	46	106.5	NA	2/25/12 18:34		281447	
trans-1,2-Dichloroethene	730	U	730	56	106.5	NA	2/25/12 18:34		281447	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-045.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-019	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	730	U	730	30	106.5	NA	2/25/12 18:34		281447	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	77-128	2/25/12 18:34	
Dibromofluoromethane	98	65-136	2/25/12 18:34	
Toluene-d8	97	75-126	2/25/12 18:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1321
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-047.0-20120213		
Lab Code:	R1201033-020	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**68.3**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1321
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 19:04
Sample Name:	LC34-DPT0348-047.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-020	**Basis:**	Dry
		Percent Solids:	68.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6594.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	332.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2400	U	2400	180	
79-34-5	1,1,2,2-Tetrachloroethane	2400	U	2400	98	
79-00-5	1,1,2-Trichloroethane	2400	U	2400	120	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2400	U	2400	98	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2400	U	2400	98	
107-06-2	1,2-Dichloroethane	2400	U	2400	98	
78-87-5	1,2-Dichloropropane	2400	U	2400	130	
71-36-3	n-Butanol	120000	U	120000	7600	
78-93-3	2-Butanone (MEK)	2400	U	2400	330	
591-78-6	2-Hexanone	2400	U	2400	130	
108-10-1	4-Methyl-2-pentanone	2400	U	2400	120	
67-64-1	Acetone	2400	U	2400	550	
71-43-2	Benzene	2400	U	2400	98	
75-27-4	Bromodichloromethane	2400	U	2400	98	
75-25-2	Bromoform	2400	U	2400	120	
74-83-9	Bromomethane	2400	U	2400	200	
75-15-0	Carbon Disulfide	2400	U	2400	440	
56-23-5	Carbon Tetrachloride	2400	U	2400	130	
108-90-7	Chlorobenzene	**920**	I	2400	98	
75-00-3	Chloroethane	2400	U	2400	190	
67-66-3	Chloroform	2400	U	2400	98	
74-87-3	Chloromethane	2400	U	2400	230	
124-48-1	Dibromochloromethane	2400	U	2400	98	
75-09-2	Dichloromethane	2400	U	2400	140	
100-41-4	Ethylbenzene	2400	U	2400	98	
100-42-5	Styrene	2400	U	2400	98	
127-18-4	Tetrachloroethene (PCE)	2400	U	2400	98	
108-88-3	Toluene	2400	U	2400	98	
79-01-6	Trichloroethene (TCE)	**41000**		2400	98	
75-01-4	Vinyl Chloride	2400	U	2400	140	
156-59-2	cis-1,2-Dichloroethene	**23000**		2400	380	
10061-01-5	cis-1,3-Dichloropropene	2400	U	2400	98	
179601-23-1	m,p-Xylenes	4900	U	4900	330	
123-86-4	n-Butyl Acetate	2400	U	2400	98	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1321
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 19:04
Sample Name:	LC34-DPT0348-047.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-020	**Basis:**	Dry
		Percent Solids:	68.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6594.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	332.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	2400	U	2400	98	
156-60-5	trans-1,2-Dichloroethene	**270**	I	2400	120	
10061-02-6	trans-1,3-Dichloropropene	2400	U	2400	98	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	2/25/12 19:04	
Dibromofluoromethane	96	89-119	2/25/12 19:04	
Toluene-d8	97	87-121	2/25/12 19:04	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1330
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-048.5-20120213		
Lab Code:	R1201033-021	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**75.0**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1330
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-048.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-021	**Basis:**	Dry
		Percent Solids:	75.0

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1700	U	1700	120	248.5	NA	2/25/12 19:35		281447	
1,1,2,2-Tetrachloroethane	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
1,1,2-Trichloroethane	1700	U	1700	77	248.5	NA	2/25/12 19:35		281447	
1,1-Dichloroethane (1,1-DCA)	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
1,1-Dichloroethene (1,1-DCE)	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
1,2-Dichloroethane	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
1,2-Dichloropropane	1700	U	1700	83	248.5	NA	2/25/12 19:35		281447	
n-Butanol	83000	U	83000	5200	248.5	NA	2/25/12 19:35		281447	
2-Butanone (MEK)	1700	U	1700	220	248.5	NA	2/25/12 19:35		281447	
2-Hexanone	1700	U	1700	83	248.5	NA	2/25/12 19:35		281447	
4-Methyl-2-pentanone	1700	U	1700	77	248.5	NA	2/25/12 19:35		281447	
Acetone	1700	U	1700	380	248.5	NA	2/25/12 19:35		281447	
Benzene	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Bromodichloromethane	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Bromoform	1700	U	1700	80	248.5	NA	2/25/12 19:35		281447	
Bromomethane	1700	U	1700	140	248.5	NA	2/25/12 19:35		281447	
Carbon Disulfide	1700	U	1700	300	248.5	NA	2/25/12 19:35		281447	
Carbon Tetrachloride	1700	U	1700	87	248.5	NA	2/25/12 19:35		281447	
Chlorobenzene	**380**	I	1700	67	248.5	NA	2/25/12 19:35		281447	
Chloroethane	1700	U	1700	130	248.5	NA	2/25/12 19:35		281447	
Chloroform	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Chloromethane	1700	U	1700	160	248.5	NA	2/25/12 19:35		281447	
Dibromochloromethane	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Dichloromethane	1700	U	1700	90	248.5	NA	2/25/12 19:35		281447	
Ethylbenzene	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Styrene	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Tetrachloroethene (PCE)	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Toluene	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
Trichloroethene (TCE)	**75000**		3300	140	497	NA	2/27/12 14:20		281525	
Vinyl Chloride	1700	U	1700	93	248.5	NA	2/25/12 19:35		281447	
cis-1,2-Dichloroethene	**27000**		1700	260	248.5	NA	2/25/12 19:35		281447	
cis-1,3-Dichloropropene	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
m,p-Xylenes	3300	U	3300	230	248.5	NA	2/25/12 19:35		281447	
n-Butyl Acetate	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
o-Xylene	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	
trans-1,2-Dichloroethene	**240**	I	1700	77	248.5	NA	2/25/12 19:35		281447	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1330
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-048.5-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-021	**Basis:**	Dry
		Percent Solids:	75.0

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	1700	U	1700	67	248.5	NA	2/25/12 19:35		281447	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	2/25/12 19:35	
Dibromofluoromethane	100	89-119	2/25/12 19:35	
Toluene-d8	98	87-121	2/25/12 19:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1345
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-053.0-20120213		
Lab Code:	R1201033-022	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**81.0**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1345
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 22:08
Sample Name:	LC34-DPT0348-053.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-022	**Basis:**	Dry
		Percent Solids:	81.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281378
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022412\J6446.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.87

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.4	U	5.4	0.33	
79-34-5	1,1,2,2-Tetrachloroethane	5.4	U	5.4	0.38	
79-00-5	1,1,2-Trichloroethane	5.4	U	5.4	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.4	U	5.4	0.29	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.4	U	5.4	0.40	
107-06-2	1,2-Dichloroethane	5.4	U	5.4	0.33	
78-87-5	1,2-Dichloropropane	5.4	U	5.4	0.39	
71-36-3	n-Butanol	270	U	270	13	
78-93-3	2-Butanone (MEK)	5.4	U	5.4	2.2	
591-78-6	2-Hexanone	5.4	U	5.4	1.3	
108-10-1	4-Methyl-2-pentanone	5.4	U	5.4	0.46	
67-64-1	Acetone	**11**	V	5.4	1.2	
71-43-2	Benzene	5.4	U	5.4	0.26	
75-27-4	Bromodichloromethane	5.4	U	5.4	0.31	
75-25-2	Bromoform	5.4	U	5.4	0.45	
74-83-9	Bromomethane	5.4	U	5.4	0.41	
75-15-0	Carbon Disulfide	**22**		5.4	0.31	
56-23-5	Carbon Tetrachloride	5.4	U	5.4	0.82	
108-90-7	Chlorobenzene	5.4	U	5.4	0.35	
75-00-3	Chloroethane	5.4	U	5.4	0.47	
67-66-3	Chloroform	5.4	U	5.4	0.57	
74-87-3	Chloromethane	5.4	U	5.4	0.48	
124-48-1	Dibromochloromethane	5.4	U	5.4	0.38	
75-09-2	Dichloromethane	5.4	U	5.4	0.24	
100-41-4	Ethylbenzene	5.4	U	5.4	0.46	
100-42-5	Styrene	5.4	U	5.4	0.34	
127-18-4	Tetrachloroethene (PCE)	5.4	U	5.4	0.62	
108-88-3	Toluene	**0.35**	I	5.4	0.34	
79-01-6	Trichloroethene (TCE)	**1.0**	I	5.4	0.55	
75-01-4	Vinyl Chloride	**3.2**	I	5.4	0.51	
156-59-2	cis-1,2-Dichloroethene	**3.9**	I	5.4	0.40	
10061-01-5	cis-1,3-Dichloropropene	5.4	U	5.4	0.38	
179601-23-1	m,p-Xylenes	11	U	11	0.75	
123-86-4	n-Butyl Acetate	**0.71**	I	5.4	0.49	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1345
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/24/12 22:08
Sample Name:	LC34-DPT0348-053.0-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-022	**Basis:**	Dry
		Percent Solids:	81.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281378
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022412\J6446.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.87

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.4	U	5.4	0.34	
156-60-5	trans-1,2-Dichloroethene	5.4	U	5.4	0.41	
10061-02-6	trans-1,3-Dichloropropene	5.4	U	5.4	0.22	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	77-128	2/24/12 22:08	
Dibromofluoromethane	95	65-136	2/24/12 22:08	
Toluene-d8	103	75-126	2/24/12 22:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 11:55
Sample Name:	LC34-TB-20120213	**Units:**	µg/L
Lab Code:	R1201033-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8368.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 11:55
Sample Name:	LC34-TB-20120213	**Units:**	µg/L
Lab Code:	R1201033-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8368.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	2/17/12 11:55	
Dibromofluoromethane	103	89-119	2/17/12 11:55	
Toluene-d8	98	87-121	2/17/12 11:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-045.4-20120213		
Lab Code:	R1201033-024	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.6**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/27/12 22:52
Sample Name:	LC34-DPT0348-045.4-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-024	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281576
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022712\J6493.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1.18

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	8.1	U	8.1	0.49	
79-34-5	1,1,2,2-Tetrachloroethane	8.1	U	8.1	0.57	
79-00-5	1,1,2-Trichloroethane	8.1	U	8.1	0.46	
75-34-3	1,1-Dichloroethane (1,1-DCA)	8.1	U	8.1	0.44	
75-35-4	1,1-Dichloroethene (1,1-DCE)	8.1	U	8.1	0.61	
107-06-2	1,2-Dichloroethane	8.1	U	8.1	0.49	
78-87-5	1,2-Dichloropropane	8.1	U	8.1	0.59	
71-36-3	n-Butanol	**26**	I	410	19	
78-93-3	2-Butanone (MEK)	**10**		8.1	3.3	
591-78-6	2-Hexanone	8.1	U	8.1	1.9	
108-10-1	4-Methyl-2-pentanone	8.1	U	8.1	0.69	
67-64-1	Acetone	**91**		8.1	1.8	
71-43-2	Benzene	8.1	U	8.1	0.40	
75-27-4	Bromodichloromethane	8.1	U	8.1	0.46	
75-25-2	Bromoform	8.1	U	8.1	0.67	
74-83-9	Bromomethane	8.1	U	8.1	0.62	
75-15-0	Carbon Disulfide	**13**		8.1	0.46	
56-23-5	Carbon Tetrachloride	8.1	U	8.1	1.3	
108-90-7	Chlorobenzene	**2.3**	I	8.1	0.53	
75-00-3	Chloroethane	8.1	U	8.1	0.70	
67-66-3	Chloroform	8.1	U	8.1	0.87	
74-87-3	Chloromethane	8.1	U	8.1	0.72	
124-48-1	Dibromochloromethane	8.1	U	8.1	0.57	
75-09-2	Dichloromethane	8.1	U	8.1	0.36	
100-41-4	Ethylbenzene	8.1	U	8.1	0.69	
100-42-5	Styrene	8.1	U	8.1	0.51	
127-18-4	Tetrachloroethene (PCE)	8.1	U	8.1	0.93	
108-88-3	Toluene	8.1	U	8.1	0.51	
79-01-6	Trichloroethene (TCE)	**190**		8.1	0.83	
75-01-4	Vinyl Chloride	**0.91**	I	8.1	0.77	
156-59-2	cis-1,2-Dichloroethene	**31**		8.1	0.61	
10061-01-5	cis-1,3-Dichloropropene	8.1	U	8.1	0.57	
179601-23-1	m,p-Xylenes	16	U	16	1.2	
123-86-4	n-Butyl Acetate	**2.5**	I	8.1	0.74	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/27/12 22:52
Sample Name:	LC34-DPT0348-045.4-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-024	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281576
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022712\J6493.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1.18

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	**3.2**	I	8.1	0.51	
156-60-5	trans-1,2-Dichloroethene	8.1	U	8.1	0.62	
10061-02-6	trans-1,3-Dichloropropene	8.1	U	8.1	0.33	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	77-128	2/27/12 22:52	
Dibromofluoromethane	99	65-136	2/27/12 22:52	
Toluene-d8	105	75-126	2/27/12 22:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
Sample Name:	LC34-DPT0348-045.6-20120213		
Lab Code:	R1201033-025	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.6**		Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 18:07
Sample Name:	LC34-DPT0348-045.6-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-025	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6461.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.83

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.7	U	5.7	0.35	
79-34-5	1,1,2,2-Tetrachloroethane	5.7	U	5.7	0.41	
79-00-5	1,1,2-Trichloroethane	5.7	U	5.7	0.33	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.42**	I	5.7	0.31	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.7	U	5.7	0.43	
107-06-2	1,2-Dichloroethane	5.7	U	5.7	0.35	
78-87-5	1,2-Dichloropropane	5.7	U	5.7	0.42	
71-36-3	n-Butanol	290	U	290	14	
78-93-3	2-Butanone (MEK)	5.7	U	5.7	2.3	
591-78-6	2-Hexanone	5.7	U	5.7	1.4	
108-10-1	4-Methyl-2-pentanone	5.7	U	5.7	0.49	
67-64-1	Acetone	**37**		5.7	1.3	
71-43-2	Benzene	5.7	U	5.7	0.28	
75-27-4	Bromodichloromethane	5.7	U	5.7	0.33	
75-25-2	Bromoform	5.7	U	5.7	0.47	
74-83-9	Bromomethane	5.7	U	5.7	0.44	
75-15-0	Carbon Disulfide	**67**		5.7	0.33	
56-23-5	Carbon Tetrachloride	5.7	U	5.7	0.87	
108-90-7	Chlorobenzene	5.7	U	5.7	0.37	
75-00-3	Chloroethane	5.7	U	5.7	0.50	
67-66-3	Chloroform	5.7	U	5.7	0.61	
74-87-3	Chloromethane	5.7	U	5.7	0.51	
124-48-1	Dibromochloromethane	5.7	U	5.7	0.41	
75-09-2	Dichloromethane	**0.30**	I	5.7	0.26	
100-41-4	Ethylbenzene	5.7	U	5.7	0.49	
100-42-5	Styrene	5.7	U	5.7	0.36	
127-18-4	Tetrachloroethene (PCE)	5.7	U	5.7	0.66	
108-88-3	Toluene	**0.59**	I	5.7	0.36	
79-01-6	Trichloroethene (TCE)	**3400**	L	5.7	0.59	
75-01-4	Vinyl Chloride	**390**	L	5.7	0.54	
156-59-2	cis-1,2-Dichloroethene	**1300**	L	5.7	0.43	
10061-01-5	cis-1,3-Dichloropropene	5.7	U	5.7	0.41	
179601-23-1	m,p-Xylenes	11	U	11	0.79	
123-86-4	n-Butyl Acetate	**1.1**	I	5.7	0.52	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	2/13/12 1312
Sample Matrix:	Soil	**Date Received:**	2/15/12
		Date Analyzed:	2/25/12 18:07
Sample Name:	LC34-DPT0348-045.6-20120213	**Units:**	µg/Kg
Lab Code:	R1201033-025	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6461.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	.83

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.7	U	5.7	0.36	
156-60-5	trans-1,2-Dichloroethene	14		5.7	0.44	
10061-02-6	trans-1,3-Dichloropropene	5.7	U	5.7	0.23	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	77-128	2/25/12 18:07	
Dibromofluoromethane	97	65-136	2/25/12 18:07	
Toluene-d8	104	75-126	2/25/12 18:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201033-MB1	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201033-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	2/16/12 15:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/17/12 11:25
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201955-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8367.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/17/12 11:25
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201955-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8367.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	2/17/12 11:25	
Dibromofluoromethane	102	89-119	2/17/12 11:25	
Toluene-d8	98	87-121	2/17/12 11:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/23/12 16:25
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202043-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8489.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	18	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	13	
71-36-3	n-Butanol	13000	U	13000	780	
78-93-3	2-Butanone (MEK)	47	I	250	33	
591-78-6	2-Hexanone	250	U	250	13	
108-10-1	4-Methyl-2-pentanone	250	U	250	12	
67-64-1	Acetone	250	U	250	57	
71-43-2	Benzene	250	U	250	10	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	12	
74-83-9	Bromomethane	250	U	250	21	
75-15-0	Carbon Disulfide	250	U	250	45	
56-23-5	Carbon Tetrachloride	250	U	250	13	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	19	
67-66-3	Chloroform	250	U	250	10	
74-87-3	Chloromethane	250	U	250	23	
124-48-1	Dibromochloromethane	250	U	250	10	
75-09-2	Dichloromethane	250	U	250	14	
100-41-4	Ethylbenzene	250	U	250	10	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	10	
75-01-4	Vinyl Chloride	250	U	250	15	
156-59-2	cis-1,2-Dichloroethene	250	U	250	39	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	500	U	500	34	
123-86-4	n-Butyl Acetate	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/23/12 16:25
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202043-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281215
Data File Name:	J:\ACQUDATA\msvoa10\data\022312\D8489.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	250	U	250	12	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	2/23/12 16:25	
Dibromofluoromethane	104	89-119	2/23/12 16:25	
Toluene-d8	106	87-121	2/23/12 16:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/24/12 14:03
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202069-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8517.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	18	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	13	
71-36-3	n-Butanol	13000	U	13000	780	
78-93-3	2-Butanone (MEK)	**51**	I	250	33	
591-78-6	2-Hexanone	250	U	250	13	
108-10-1	4-Methyl-2-pentanone	250	U	250	12	
67-64-1	Acetone	250	U	250	57	
71-43-2	Benzene	250	U	250	10	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	12	
74-83-9	Bromomethane	250	U	250	21	
75-15-0	Carbon Disulfide	250	U	250	45	
56-23-5	Carbon Tetrachloride	250	U	250	13	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	19	
67-66-3	Chloroform	250	U	250	10	
74-87-3	Chloromethane	250	U	250	23	
124-48-1	Dibromochloromethane	250	U	250	10	
75-09-2	Dichloromethane	250	U	250	14	
100-41-4	Ethylbenzene	250	U	250	10	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	10	
75-01-4	Vinyl Chloride	250	U	250	15	
156-59-2	cis-1,2-Dichloroethene	250	U	250	39	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	500	U	500	34	
123-86-4	n-Butyl Acetate	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/24/12 14:03
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202069-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281373
Data File Name:	J:\ACQUDATA\msvoa10\data\022412\D8517.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	250	U	250	12	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	2/24/12 14:03	
Dibromofluoromethane	104	89-119	2/24/12 14:03	
Toluene-d8	107	87-121	2/24/12 14:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/24/12 20:19
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202004-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281378
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022412\J6443.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.35	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.28	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.27	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.36	
71-36-3	n-Butanol	250	U	250	12	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	2.0	
591-78-6	2-Hexanone	5.0	U	5.0	1.2	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.42	
67-64-1	Acetone	**1.3**	I	5.0	1.1	
71-43-2	Benzene	5.0	U	5.0	0.24	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.28	
75-25-2	Bromoform	5.0	U	5.0	0.41	
74-83-9	Bromomethane	5.0	U	5.0	0.38	
75-15-0	Carbon Disulfide	5.0	U	5.0	0.28	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.76	
108-90-7	Chlorobenzene	5.0	U	5.0	0.32	
75-00-3	Chloroethane	5.0	U	5.0	0.43	
67-66-3	Chloroform	5.0	U	5.0	0.53	
74-87-3	Chloromethane	5.0	U	5.0	0.44	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.35	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	
100-42-5	Styrene	5.0	U	5.0	0.31	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.57	
108-88-3	Toluene	5.0	U	5.0	0.31	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.51	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.47	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.37	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.35	
179601-23-1	m,p-Xylenes	10	U	10	0.69	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.45	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/24/12 20:19
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202004-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281378
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022412\J6443.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.0	U	5.0	0.31	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.38	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	77-128	2/24/12 20:19	
Dibromofluoromethane	88	65-136	2/24/12 20:19	
Toluene-d8	104	75-126	2/24/12 20:19	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/25/12 15:44
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202011-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6457.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.35	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.28	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.27	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.36	
71-36-3	n-Butanol	250	U	250	12	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	2.0	
591-78-6	2-Hexanone	5.0	U	5.0	1.2	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.42	
67-64-1	Acetone	5.0	U	5.0	1.1	
71-43-2	Benzene	5.0	U	5.0	0.24	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.28	
75-25-2	Bromoform	5.0	U	5.0	0.41	
74-83-9	Bromomethane	5.0	U	5.0	0.38	
75-15-0	Carbon Disulfide	5.0	U	5.0	0.28	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.76	
108-90-7	Chlorobenzene	5.0	U	5.0	0.32	
75-00-3	Chloroethane	5.0	U	5.0	0.43	
67-66-3	Chloroform	5.0	U	5.0	0.53	
74-87-3	Chloromethane	5.0	U	5.0	0.44	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.35	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	
100-42-5	Styrene	5.0	U	5.0	0.31	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.57	
108-88-3	Toluene	5.0	U	5.0	0.31	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.51	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.47	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.37	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.35	
179601-23-1	m,p-Xylenes	10	U	10	0.69	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.45	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/25/12 15:44
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202011-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281419
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022512\J6457.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.0	U	5.0	0.31	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.38	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	77-128	2/25/12 15:44	
Dibromofluoromethane	101	65-136	2/25/12 15:44	
Toluene-d8	106	75-126	2/25/12 15:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/25/12 17:03
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202101-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6590.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	18	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	13	
71-36-3	n-Butanol	13000	U	13000	780	
78-93-3	2-Butanone (MEK)	**84**	I	250	33	
591-78-6	2-Hexanone	250	U	250	13	
108-10-1	4-Methyl-2-pentanone	250	U	250	12	
67-64-1	Acetone	250	U	250	57	
71-43-2	Benzene	250	U	250	10	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	12	
74-83-9	Bromomethane	250	U	250	21	
75-15-0	Carbon Disulfide	250	U	250	45	
56-23-5	Carbon Tetrachloride	250	U	250	13	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	19	
67-66-3	Chloroform	250	U	250	10	
74-87-3	Chloromethane	250	U	250	23	
124-48-1	Dibromochloromethane	250	U	250	10	
75-09-2	Dichloromethane	250	U	250	14	
100-41-4	Ethylbenzene	250	U	250	10	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	10	
75-01-4	Vinyl Chloride	250	U	250	15	
156-59-2	cis-1,2-Dichloroethene	250	U	250	39	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	500	U	500	34	
123-86-4	n-Butyl Acetate	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/25/12 17:03
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202101-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281447
Data File Name:	J:\ACQUDATA\msvoa12\Data\022512\U6590.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	**22**	I	250	10	
156-60-5	trans-1,2-Dichloroethene	250	U	250	12	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	2/25/12 17:03	
Dibromofluoromethane	97	89-119	2/25/12 17:03	
Toluene-d8	96	87-121	2/25/12 17:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/27/12 12:48
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202040-08	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281525
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\022712\U6605.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	18	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	13	
71-36-3	n-Butanol	13000	U	13000	780	
78-93-3	2-Butanone (MEK)	250	U	250	33	
591-78-6	2-Hexanone	250	U	250	13	
108-10-1	4-Methyl-2-pentanone	250	U	250	12	
67-64-1	Acetone	250	U	250	57	
71-43-2	Benzene	250	U	250	10	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	12	
74-83-9	Bromomethane	**26**	I	250	21	
75-15-0	Carbon Disulfide	250	U	250	45	
56-23-5	Carbon Tetrachloride	250	U	250	13	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	19	
67-66-3	Chloroform	250	U	250	10	
74-87-3	Chloromethane	250	U	250	23	
124-48-1	Dibromochloromethane	250	U	250	10	
75-09-2	Dichloromethane	250	U	250	14	
100-41-4	Ethylbenzene	250	U	250	10	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	10	
75-01-4	Vinyl Chloride	250	U	250	15	
156-59-2	cis-1,2-Dichloroethene	250	U	250	39	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	500	U	500	34	
123-86-4	n-Butyl Acetate	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/27/12 12:48
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202040-08	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281525
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\022712\U6605.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	250	U	250	12	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	2/27/12 12:48	
Dibromofluoromethane	96	89-119	2/27/12 12:48	
Toluene-d8	98	87-121	2/27/12 12:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/27/12 21:29
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202055-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281576
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022712\J6491.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.30	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.35	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.28	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.27	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.37	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.30	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.36	
71-36-3	n-Butanol	250	U	250	12	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	2.0	
591-78-6	2-Hexanone	5.0	U	5.0	1.2	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.42	
67-64-1	Acetone	5.0	U	5.0	1.1	
71-43-2	Benzene	5.0	U	5.0	0.24	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.28	
75-25-2	Bromoform	5.0	U	5.0	0.41	
74-83-9	Bromomethane	5.0	U	5.0	0.38	
75-15-0	Carbon Disulfide	5.0	U	5.0	0.28	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.76	
108-90-7	Chlorobenzene	5.0	U	5.0	0.32	
75-00-3	Chloroethane	5.0	U	5.0	0.43	
67-66-3	Chloroform	5.0	U	5.0	0.53	
74-87-3	Chloromethane	5.0	U	5.0	0.44	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.35	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.42	
100-42-5	Styrene	5.0	U	5.0	0.31	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.57	
108-88-3	Toluene	5.0	U	5.0	0.31	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.51	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.47	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.37	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.35	
179601-23-1	m,p-Xylenes	10	U	10	0.69	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.45	

Client:	GeoSyntec Consultants	**Service Request:**	R1201033
Project:	LC34 Soils 2/13/12/ TR0272	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	2/27/12 21:29
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1202055-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	281576
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\022712\J6491.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
95-47-6	o-Xylene	5.0	U	5.0	0.31	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.38	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	77-128	2/27/12 21:29	
Dibromofluoromethane	95	65-136	2/27/12 21:29	
Toluene-d8	106	75-126	2/27/12 21:29	

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Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Water

Service Request: R1201033
Date Analyzed: 2/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280472

Lab Control Sample
RQ1201955-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.6	20.0	83	72 - 128
1,1,2,2-Tetrachloroethane	19.2	20.0	96	72 - 131
1,1,2-Trichloroethane	18.2	20.0	91	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.6	20.0	78	68 - 136
1,1-Dichloroethane (1,1-DCA)	17.9	20.0	90	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.9	20.0	90	72 - 129
1,2,4-Trichlorobenzene	18.7	20.0	94	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.2	20.0	96	62 - 131
1,2-Dibromoethane	20.4	20.0	102	78 - 125
1,2-Dichlorobenzene	18.9	20.0	94	79 - 124
1,2-Dichloroethane	18.9	20.0	95	73 - 127
1,2-Dichloropropane	17.9	20.0	90	80 - 123
1,3-Dichlorobenzene	18.6	20.0	93	78 - 124
1,4-Dichlorobenzene	18.8	20.0	94	78 - 123
n-Butanol	900	1000	90	70 - 130
2-Butanone (MEK)	17.7	20.0	89	60 - 133
2-Hexanone	18.9	20.0	94	61 - 131
4-Methyl-2-pentanone	18.0	20.0	90	61 - 132
Acetone	18.2	20.0	91	54 - 139
Benzene	17.2	20.0	86	78 - 121
Bromodichloromethane	18.1	20.0	91	80 - 125
Bromoform	18.6	20.0	93	68 - 130
Bromomethane	17.2	20.0	86	57 - 144
Carbon Disulfide	17.6	20.0	88	52 - 140
Carbon Tetrachloride	16.7	20.0	84	68 - 133
Chlorobenzene	18.2	20.0	91	80 - 121
Chloroethane	16.9	20.0	85	71 - 130
Chloroform	17.6	20.0	88	78 - 125
Chloromethane	19.6	20.0	98	61 - 138
Cyclohexane	16.9	20.0	84	57 - 126
Dibromochloromethane	20.2	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	16.7	20.0	84	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Water

Service Request: R1201033
Date Analyzed: 2/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280472

Analyte Name	Lab Control Sample RQ1201955-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.1	20.0	90	75 - 125
Ethylbenzene	17.7	20.0	89	78 - 123
Isopropylbenzene (Cumene)	17.8	20.0	89	73 - 133
Methyl Acetate	19.3	20.0	97	57 - 157
Methyl tert-Butyl Ether	17.7	20.0	88	75 - 126
Methylcyclohexane	17.4	20.0	87	61 - 125
Styrene	18.1	20.0	91	80 - 132
Tetrachloroethene (PCE)	17.9	20.0	89	72 - 131
Toluene	17.0	20.0	85	78 - 122
Trichloroethene (TCE)	16.6	20.0	83	74 - 127
Trichlorofluoromethane (CFC 11)	17.4	20.0	87	69 - 141
Vinyl Chloride	16.9	20.0	84	72 - 138
cis-1,2-Dichloroethene	17.8	20.0	89	78 - 122
cis-1,3-Dichloropropene	16.9	20.0	85	77 - 125
m,p-Xylenes	36.4	40.0	91	79 - 126
n-Butyl Acetate	19.9	20.0	99	31 - 144
o-Xylene	18.2	20.0	91	77 - 118
trans-1,2-Dichloroethene	17.1	20.0	86	75 - 121
trans-1,3-Dichloropropene	17.5	20.0	87	69 - 127

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COLUMBIA ANALYTICAL SERVICES, INC.
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Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/23/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281215

Lab Control Sample
RQ1202043-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.0	20.0	100	72 - 128
1,1,2,2-Tetrachloroethane	20.9	20.0	105	72 - 131
1,1,2-Trichloroethane	20.9	20.0	104	80 - 122
1,1-Dichloroethane (1,1-DCA)	21.8	20.0	109	76 - 124
1,1-Dichloroethene (1,1-DCE)	21.3	20.0	106	72 - 129
1,2-Dichloroethane	22.3	20.0	112	73 - 127
1,2-Dichloropropane	22.2	20.0	111	80 - 123
n-Butanol	977	1000	97	70 - 130
2-Butanone (MEK)	19.6	20.0	98	60 - 133
2-Hexanone	20.4	20.0	102	61 - 131
4-Methyl-2-pentanone	19.6	20.0	98	61 - 132
Acetone	17.3	20.0	86	54 - 139
Benzene	21.2	20.0	106	78 - 121
Bromodichloromethane	21.2	20.0	106	80 - 125
Bromoform	20.8	20.0	104	68 - 130
Bromomethane	18.4	20.0	92	57 - 144
Carbon Disulfide	20.7	20.0	104	52 - 140
Carbon Tetrachloride	21.4	20.0	107	68 - 133
Chlorobenzene	21.1	20.0	106	80 - 121
Chloroethane	20.8	20.0	104	71 - 130
Chloroform	20.8	20.0	104	78 - 125
Chloromethane	22.5	20.0	112	61 - 138
Dibromochloromethane	21.9	20.0	109	78 - 133
Dichloromethane	20.3	20.0	102	75 - 125
Ethylbenzene	20.9	20.0	104	78 - 123
Styrene	20.6	20.0	103	80 - 132
Tetrachloroethene (PCE)	21.7	20.0	109	72 - 131
Toluene	21.0	20.0	105	78 - 122
Trichloroethene (TCE)	19.8	20.0	99	74 - 127
Vinyl Chloride	22.2	20.0	111	72 - 138
cis-1,2-Dichloroethene	20.3	20.0	101	78 - 122
cis-1,3-Dichloropropene	20.3	20.0	101	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/23/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281215

Lab Control Sample
RQ1202043-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	43.2	40.0	108	79 - 126
n-Butyl Acetate	20.0	20.0	100	31 - 144
o-Xylene	21.1	20.0	105	77 - 118
trans-1,2-Dichloroethene	20.0	20.0	100	75 - 121
trans-1,3-Dichloropropene	20.6	20.0	103	69 - 127

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281373

Lab Control Sample
RQ1202069-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.5	20.0	98	72 - 128
1,1,2,2-Tetrachloroethane	22.2	20.0	111	72 - 131
1,1,2-Trichloroethane	20.6	20.0	103	80 - 122
1,1-Dichloroethane (1,1-DCA)	21.0	20.0	105	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.5	20.0	102	72 - 129
1,2-Dichloroethane	22.5	20.0	112	73 - 127
1,2-Dichloropropane	21.2	20.0	106	80 - 123
n-Butanol	933	1000	93	70 - 130
2-Butanone (MEK)	20.7	20.0	104	60 - 133
2-Hexanone	22.1	20.0	111	61 - 131
4-Methyl-2-pentanone	21.2	20.0	106	61 - 132
Acetone	19.2	20.0	96	54 - 139
Benzene	20.1	20.0	100	78 - 121
Bromodichloromethane	21.0	20.0	105	80 - 125
Bromoform	21.7	20.0	109	68 - 130
Bromomethane	15.6	20.0	78	57 - 144
Carbon Disulfide	21.1	20.0	106	52 - 140
Carbon Tetrachloride	20.1	20.0	101	68 - 133
Chlorobenzene	20.5	20.0	103	80 - 121
Chloroethane	20.2	20.0	101	71 - 130
Chloroform	20.2	20.0	101	78 - 125
Chloromethane	22.3	20.0	112	61 - 138
Dibromochloromethane	22.2	20.0	111	78 - 133
Dichloromethane	20.9	20.0	105	75 - 125
Ethylbenzene	19.7	20.0	99	78 - 123
Styrene	19.5	20.0	97	80 - 132
Tetrachloroethene (PCE)	20.4	20.0	102	72 - 131
Toluene	20.1	20.0	101	78 - 122
Trichloroethene (TCE)	18.9	20.0	94	74 - 127
Vinyl Chloride	21.1	20.0	106	72 - 138
cis-1,2-Dichloroethene	19.9	20.0	99	78 - 122
cis-1,3-Dichloropropene	19.9	20.0	100	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281373

Lab Control Sample
RQ1202069-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	41.1	40.0	103	79 - 126
n-Butyl Acetate	21.6	20.0	108	31 - 144
o-Xylene	20.5	20.0	102	77 - 118
trans-1,2-Dichloroethene	19.6	20.0	98	75 - 121
trans-1,3-Dichloropropene	20.3	20.0	102	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281378

	Lab Control Sample RQ1202004-03			Duplicate Lab Control Sample RQ1202004-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	17.4	20.0	87	16.6	20.0	83	68 - 129	5	30
1,1,2,2-Tetrachloroethane	20.1	20.0	100	19.1	20.0	95	72 - 133	5	30
1,1,2-Trichloroethane	19.5	20.0	98	20.2	20.0	101	75 - 123	4	30
1,1-Dichloroethane (1,1-DCA)	17.5	20.0	87	17.5	20.0	88	71 - 129	<1	30
1,1-Dichloroethene (1,1-DCE)	19.2	20.0	96	19.3	20.0	97	71 - 133	<1	30
1,2-Dichloroethane	18.5	20.0	93	17.7	20.0	88	69 - 129	5	30
1,2-Dichloropropane	20.2	20.0	101	20.5	20.0	103	76 - 123	1	30
n-Butanol	977	1000	97	879	1000	88	70 - 130	11	30
2-Butanone (MEK)	15.7	20.0	78	15.9	20.0	80	69 - 129	1	30
2-Hexanone	24.1	20.0	120	20.2	20.0	101	62 - 130	18	30
4-Methyl-2-pentanone	21.9	20.0	110	20.2	20.0	101	64 - 136	8	30
Acetone	15.2	20.0	76	16.2	20.0	81	53 - 148	6	30
Benzene	21.8	20.0	109	21.2	20.0	106	74 - 120	3	30
Bromodichloromethane	19.2	20.0	96	19.2	20.0	96	74 - 123	<1	30
Bromoform	20.0	20.0	100	21.8	20.0	109	67 - 129	9	30
Bromomethane	14.5	20.0	72	15.5	20.0	77	53 - 143	7	30
Carbon Disulfide	20.3	20.0	101	20.1	20.0	100	58 - 139	1	30
Carbon Tetrachloride	20.7	20.0	103	18.6	20.0	93	62 - 136	10	30
Chlorobenzene	22.8	20.0	114	22.7	20.0	113	72 - 126	<1	30
Chloroethane	20.0	20.0	100	19.0	20.0	95	69 - 136	5	30
Chloroform	17.3	20.0	86	17.0	20.0	85	72 - 128	1	30
Chloromethane	24.2	20.0	121	23.0	20.0	115	60 - 140	5	30
Dibromochloromethane	19.8	20.0	99	19.5	20.0	97	70 - 133	2	30
Dichloromethane	18.6	20.0	93	18.3	20.0	91	75 - 122	2	30
Ethylbenzene	22.7	20.0	113	21.5	20.0	108	68 - 129	5	30
Styrene	22.6	20.0	113	22.1	20.0	111	68 - 125	2	30
Tetrachloroethene (PCE)	26.7	20.0	134 *	24.9	20.0	124	64 - 133	7	30
Toluene	23.2	20.0	116	23.3	20.0	117	70 - 126	<1	30
Trichloroethene (TCE)	21.7	20.0	108	21.3	20.0	106	71 - 125	2	30
Vinyl Chloride	20.2	20.0	101	19.5	20.0	97	65 - 143	4	30
cis-1,2-Dichloroethene	19.0	20.0	95	19.1	20.0	96	74 - 125	<1	30
cis-1,3-Dichloropropene	21.3	20.0	107	19.6	20.0	98	71 - 118	9	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281378

	Lab Control Sample RQ1202004-03			Duplicate Lab Control Sample RQ1202004-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
m,p-Xylenes	49.2	40.0	123	46.2	40.0	115	68 - 129	6	30
n-Butyl Acetate	21.3	20.0	106	18.9	20.0	95	52 - 143	12	30
o-Xylene	23.1	20.0	115	22.3	20.0	111	69 - 127	4	30
trans-1,2-Dichloroethene	19.5	20.0	97	19.4	20.0	97	71 - 127	<1	30
trans-1,3-Dichloropropene	19.5	20.0	98	18.9	20.0	94	70 - 120	3	30

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COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/25/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281419

	Lab Control Sample RQ1202011-03			Duplicate Lab Control Sample RQ1202011-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	16.7	20.0	84	16.1	20.0	80	68 - 129	4	30
1,1,2,2-Tetrachloroethane	17.8	20.0	89	16.7	20.0	84	72 - 133	6	30
1,1,2-Trichloroethane	19.9	20.0	100	17.4	20.0	87	75 - 123	13	30
1,1-Dichloroethane (1,1-DCA)	17.6	20.0	88	16.1	20.0	81	71 - 129	9	30
1,1-Dichloroethene (1,1-DCE)	18.6	20.0	93	18.0	20.0	90	71 - 133	4	30
1,2-Dichloroethane	16.6	20.0	83	16.9	20.0	84	69 - 129	2	30
1,2-Dichloropropane	18.8	20.0	94	19.1	20.0	96	76 - 123	2	30
n-Butanol	908	1000	90	881	1000	88	70 - 130	3	30
2-Butanone (MEK)	15.1	20.0	75	15.2	20.0	76	69 - 129	1	30
2-Hexanone	20.7	20.0	104	18.8	20.0	94	62 - 130	10	30
4-Methyl-2-pentanone	20.5	20.0	103	17.9	20.0	90	64 - 136	13	30
Acetone	15.3	20.0	77	15.4	20.0	77	53 - 148	<1	30
Benzene	20.9	20.0	104	19.4	20.0	97	74 - 120	7	30
Bromodichloromethane	17.4	20.0	87	18.2	20.0	91	74 - 123	5	30
Bromoform	19.6	20.0	98	18.1	20.0	91	67 - 129	8	30
Bromomethane	13.6	20.0	68	15.8	20.0	79	53 - 143	15	30
Carbon Disulfide	19.4	20.0	97	18.6	20.0	93	58 - 139	4	30
Carbon Tetrachloride	18.5	20.0	92	17.6	20.0	88	62 - 136	5	30
Chlorobenzene	20.4	20.0	102	20.2	20.0	101	72 - 126	1	30
Chloroethane	19.3	20.0	96	18.8	20.0	94	69 - 136	3	30
Chloroform	17.1	20.0	86	15.4	20.0	77	72 - 128	10	30
Chloromethane	23.8	20.0	119	22.8	20.0	114	60 - 140	4	30
Dibromochloromethane	18.4	20.0	92	16.7	20.0	84	70 - 133	9	30
Dichloromethane	17.3	20.0	86	16.4	20.0	82	75 - 122	5	30
Ethylbenzene	20.4	20.0	102	19.5	20.0	97	68 - 129	5	30
Styrene	20.2	20.0	101	20.0	20.0	100	68 - 125	<1	30
Tetrachloroethene (PCE)	23.4	20.0	117	21.9	20.0	110	64 - 133	7	30
Toluene	21.8	20.0	109	20.0	20.0	100	70 - 126	9	30
Trichloroethene (TCE)	19.6	20.0	98	18.5	20.0	93	71 - 125	6	30
Vinyl Chloride	19.5	20.0	98	19.2	20.0	96	65 - 143	1	30
cis-1,2-Dichloroethene	18.6	20.0	93	18.0	20.0	90	74 - 125	3	30
cis-1,3-Dichloropropene	18.2	20.0	91	18.8	20.0	94	71 - 118	3	30

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/25/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281419

	Lab Control Sample RQ1202011-03			Duplicate Lab Control Sample RQ1202011-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
m,p-Xylenes	44.6	40.0	112	41.5	40.0	104	68 - 129	7	30
n-Butyl Acetate	18.0	20.0	90	16.3	20.0	82	52 - 143	10	30
o-Xylene	20.5	20.0	102	20.6	20.0	103	69 - 127	<1	30
trans-1,2-Dichloroethene	19.3	20.0	97	17.9	20.0	90	71 - 127	8	30
trans-1,3-Dichloropropene	18.1	20.0	90	17.7	20.0	88	70 - 120	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/25/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281447

	Lab Control Sample RQ1202101-03				Duplicate Lab Control Sample RQ1202101-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**		**RPD Limit**
1,1,1-Trichloroethane (TCA)	17.1	20.0	85		22.1	20.0	110	72 - 128	26		30
1,1,2,2-Tetrachloroethane	17.8	20.0	89		23.4	20.0	117	72 - 131	27		30
1,1,2-Trichloroethane	16.8	20.0	84		21.4	20.0	107	80 - 122	24		30
1,1-Dichloroethane (1,1-DCA)	17.7	20.0	89		23.5	20.0	118	76 - 124	28		30
1,1-Dichloroethene (1,1-DCE)	17.6	20.0	88		22.8	20.0	114	72 - 129	26		30
1,2-Dichloroethane	17.1	20.0	85		22.5	20.0	113	73 - 127	28		30
1,2-Dichloropropane	15.8	20.0	79	*	21.1	20.0	105	80 - 123	28		30
n-Butanol	909	1000	91		1260	1000	125	70 - 130	32	*	30
2-Butanone (MEK)	16.5	20.0	83		21.9	20.0	110	60 - 133	28		30
2-Hexanone	15.4	20.0	77		22.3	20.0	111	61 - 131	37	*	30
4-Methyl-2-pentanone	14.8	20.0	74		20.7	20.0	104	61 - 132	33	*	30
Acetone	14.4	20.0	72		17.2	20.0	86	54 - 139	18		30
Benzene	16.6	20.0	83		20.3	20.0	102	78 - 121	20		30
Bromodichloromethane	17.8	20.0	89		21.7	20.0	109	80 - 125	20		30
Bromoform	16.6	20.0	83		22.6	20.0	113	68 - 130	31	*	30
Bromomethane	12.6	20.0	63		15.8	20.0	79	57 - 144	23		30
Carbon Disulfide	20.3	20.0	102		25.5	20.0	127	52 - 140	22		30
Carbon Tetrachloride	16.2	20.0	81		21.6	20.0	108	68 - 133	29		30
Chlorobenzene	16.7	20.0	84		22.1	20.0	111	80 - 121	28		30
Chloroethane	17.0	20.0	85		23.5	20.0	117	71 - 130	32	*	30
Chloroform	18.6	20.0	93		24.2	20.0	121	78 - 125	26		30
Chloromethane	17.2	20.0	86		22.3	20.0	112	61 - 138	26		30
Dibromochloromethane	18.0	20.0	90		23.6	20.0	118	78 - 133	27		30
Dichloromethane	16.9	20.0	85		21.9	20.0	109	75 - 125	26		30
Ethylbenzene	17.1	20.0	85		21.6	20.0	108	78 - 123	23		30
Styrene	17.2	20.0	86		22.4	20.0	112	80 - 132	26		30
Tetrachloroethene (PCE)	17.0	20.0	85		21.9	20.0	109	72 - 131	25		30
Toluene	17.0	20.0	85		21.5	20.0	108	78 - 122	23		30
Trichloroethene (TCE)	16.0	20.0	80		20.2	20.0	101	74 - 127	23		30
Vinyl Chloride	18.1	20.0	91		21.5	20.0	107	72 - 138	17		30
cis-1,2-Dichloroethene	16.7	20.0	83		22.1	20.0	111	78 - 122	28		30
cis-1,3-Dichloropropene	16.6	20.0	83		20.4	20.0	102	77 - 125	21		30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/25/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281447

	Lab Control Sample RQ1202101-03			Duplicate Lab Control Sample RQ1202101-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
m,p-Xylenes	34.2	40.0	86	45.1	40.0	113	79 - 126	27	30
n-Butyl Acetate	15.0	20.0	75	20.2	20.0	101	31 - 144	29	30
o-Xylene	17.4	20.0	87	22.1	20.0	111	77 - 118	24	30
trans-1,2-Dichloroethene	18.3	20.0	91	22.3	20.0	112	75 - 121	20	30
trans-1,3-Dichloropropene	17.6	20.0	88	21.1	20.0	105	69 - 127	18	30

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/27/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281525

Lab Control Sample
RQ1202040-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	23.0	20.0	115	72 - 128
1,1,2,2-Tetrachloroethane	24.1	20.0	120	72 - 131
1,1,2-Trichloroethane	21.9	20.0	109	80 - 122
1,1-Dichloroethane (1,1-DCA)	23.3	20.0	116	76 - 124
1,1-Dichloroethene (1,1-DCE)	23.8	20.0	119	72 - 129
1,2-Dichloroethane	21.7	20.0	108	73 - 127
1,2-Dichloropropane	21.1	20.0	105	80 - 123
n-Butanol	1190	1000	119	70 - 130
2-Butanone (MEK)	21.3	20.0	106	60 - 133
2-Hexanone	22.4	20.0	112	61 - 131
4-Methyl-2-pentanone	19.8	20.0	99	61 - 132
Acetone	19.0	20.0	95	54 - 139
Benzene	21.7	20.0	109	78 - 121
Bromodichloromethane	21.5	20.0	108	80 - 125
Bromoform	19.9	20.0	99	68 - 130
Bromomethane	17.1	20.0	86	57 - 144
Carbon Disulfide	25.0	20.0	125	52 - 140
Carbon Tetrachloride	20.3	20.0	102	68 - 133
Chlorobenzene	22.1	20.0	110	80 - 121
Chloroethane	22.2	20.0	111	71 - 130
Chloroform	24.7	20.0	123	78 - 125
Chloromethane	23.7	20.0	118	61 - 138
Dibromochloromethane	20.6	20.0	103	78 - 133
Dichloromethane	22.7	20.0	113	75 - 125
Ethylbenzene	22.5	20.0	112	78 - 123
Styrene	22.1	20.0	110	80 - 132
Tetrachloroethene (PCE)	22.2	20.0	111	72 - 131
Toluene	22.6	20.0	113	78 - 122
Trichloroethene (TCE)	20.7	20.0	104	74 - 127
Vinyl Chloride	23.1	20.0	115	72 - 138
cis-1,2-Dichloroethene	21.8	20.0	109	78 - 122
cis-1,3-Dichloropropene	20.8	20.0	104	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/27/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281525

Lab Control Sample
RQ1202040-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	45.5	40.0	114	79 - 126
n-Butyl Acetate	20.0	49.9	40	31 - 144
o-Xylene	22.4	20.0	112	77 - 118
trans-1,2-Dichloroethene	22.9	20.0	115	75 - 121
trans-1,3-Dichloropropene	21.5	20.0	107	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/27/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281576

	Lab Control Sample RQ1202055-03			Duplicate Lab Control Sample RQ1202055-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	20.3	20.0	102	18.3	20.0	91	68 - 129	10	30
1,1,2,2-Tetrachloroethane	20.5	20.0	103	20.0	20.0	100	72 - 133	3	30
1,1,2-Trichloroethane	21.6	20.0	108	20.4	20.0	102	75 - 123	5	30
1,1-Dichloroethane (1,1-DCA)	20.1	20.0	101	19.1	20.0	96	71 - 129	5	30
1,1-Dichloroethene (1,1-DCE)	20.4	20.0	102	20.4	20.0	102	71 - 133	<1	30
1,2-Dichloroethane	20.1	20.0	101	18.6	20.0	93	69 - 129	8	30
1,2-Dichloropropane	21.6	20.0	108	20.0	20.0	100	76 - 123	7	30
n-Butanol	1070	1000	107	936	1000	93	70 - 130	14	30
2-Butanone (MEK)	19.4	20.0	97	17.1	20.0	86	69 - 129	12	30
2-Hexanone	22.3	20.0	111	22.5	20.0	113	62 - 130	1	30
4-Methyl-2-pentanone	22.5	20.0	113	21.4	20.0	107	64 - 136	5	30
Acetone	21.1	20.0	106	18.9	20.0	94	53 - 148	11	30
Benzene	22.2	20.0	111	20.7	20.0	103	74 - 120	7	30
Bromodichloromethane	19.9	20.0	100	19.6	20.0	98	74 - 123	1	30
Bromoform	21.4	20.0	107	20.8	20.0	104	67 - 129	3	30
Bromomethane	16.2	20.0	81	14.5	20.0	72	53 - 143	11	30
Carbon Disulfide	23.4	20.0	117	21.1	20.0	105	58 - 139	10	30
Carbon Tetrachloride	23.2	20.0	116	20.3	20.0	101	62 - 136	14	30
Chlorobenzene	22.5	20.0	113	21.8	20.0	109	72 - 126	3	30
Chloroethane	21.1	20.0	106	20.1	20.0	101	69 - 136	5	30
Chloroform	18.5	20.0	93	18.7	20.0	94	72 - 128	1	30
Chloromethane	26.8	20.0	134	26.0	20.0	130	60 - 140	3	30
Dibromochloromethane	20.8	20.0	104	20.4	20.0	102	70 - 133	2	30
Dichloromethane	20.3	20.0	101	19.1	20.0	96	75 - 122	6	30
Ethylbenzene	23.3	20.0	116	21.7	20.0	108	68 - 129	7	30
Styrene	22.3	20.0	111	21.6	20.0	108	68 - 125	3	30
Tetrachloroethene (PCE)	25.7	20.0	129	23.9	20.0	119	64 - 133	7	30
Toluene	24.5	20.0	123	23.5	20.0	117	70 - 126	4	30
Trichloroethene (TCE)	22.2	20.0	111	20.9	20.0	105	71 - 125	6	30
Vinyl Chloride	23.0	20.0	115	21.4	20.0	107	65 - 143	7	30
cis-1,2-Dichloroethene	20.5	20.0	103	19.3	20.0	96	74 - 125	6	30
cis-1,3-Dichloropropene	20.7	20.0	104	20.3	20.0	101	71 - 118	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: LC34 Soils 2/13/12/ TR0272
Sample Matrix: Soil

Service Request: R1201033
Date Analyzed: 2/27/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 281576

	Lab Control Sample RQ1202055-03			Duplicate Lab Control Sample RQ1202055-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
m,p-Xylenes	48.8	40.0	122	46.1	40.0	115	68 - 129	6	30
n-Butyl Acetate	20.5	20.0	102	19.2	20.0	96	52 - 143	6	30
o-Xylene	23.0	20.0	115	21.8	20.0	109	69 - 127	5	30
trans-1,2-Dichloroethene	21.7	20.0	109	20.2	20.0	101	71 - 127	7	30
trans-1,3-Dichloropropene	18.8	20.0	94	19.1	20.0	96	70 - 120	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SR #

CAS Contact

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Project Name: LC34	Project Number: TR0272
Project Manager: Cory Repta	Email Address: CRepta@GeoSyntec.com
Company/Address: 6710 S Washington Ave, Titusville, Fl, GeoSyntec	
Phone #: 321 269 5880	FAX#
Sampler's Signature:	Sampler's Printed Name: David Sizemore

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS

8260C (VOCs)

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other ICE

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX				REMARKS/ ALTERNATE DESCRIPTION
LC34-DPT0332-037	0-20120213	2/13/12	848	Soil	4	X	-001	add pew client email DPT03416 KB 2/15/12
LC34-DPT0332-040	0-20120213		858				-002	
LC34-DPT0332-043.5	0-20120213		909				-003	
LC34-DPT0332-046.5	-20120213		930				-004	
LC34-DPT0332-045	0-20120213		919				-005	
LC34-DPT0332-048	0-20120213		942				-006	
LC34-DPT0332-053	0-20120213		953				-007	
LC34-DPT0332-055	0-20120213		1006				-008	
LC34-DPT0333-037	0-20120213		1035				-009	add pew client email DPT03417
LC34-DPT0333-040	0-20120213	↓	1045	↓	↓	X	-010	

SPECIAL INSTRUCTIONS/COMMENTS

See QAPP ☐

TURNAROUND REQUIREMENTS
___ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE
REQUESTED REPORT DATE

REPORT REQUIREMENTS
___ I. Results Only
___ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
X III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
___ V. Speicalized Forms / Custom
Edata X Yes ___

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: 2.1°C-5.7°C CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature	Signature	Signature	Signature: Amy Hentschke	Signature	Signature
Printed Name: David Sizemore	Printed Name	Printed Name	Printed Name: Amy Hentschke	Printed Name	Printed Name
Firm: GeoSyntec	Firm	Firm	Firm: ACS	Firm	Firm
Date/Time: 2/14/12 1700	Date/Time	Date/Time	Date/Time: 2/15/12 0945	Date/Time	Date/Time

R1201033
GeoSyntec Consultants
LC34 Soils 2/13/12

Distribution: White - Return to Originator; Yellow - Retained by Client

JSCOC-3/11

Columbia Analytical Services

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

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SR #

CAS Contact

Project Name: LC34	Project Number: TR0272
Project Manager: Cory Repta	Email Address: CRepta@GeoSyntec.com
Company/Address: GeoSyntec 6770 S Washington Ave Titusville, FL	
Phone #: 3212695880	FAX#:
Sampler's Signature:	Sampler's Printed Name: David Sizemore

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS

8260 (Voc & BA)

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 (Voc & BA)		REMARKS/ ALTERNATE DESCRIPTION
LC34-DPT0333-045.5	20120213	2/13/12	1055	Soil	4	X	-011	as per client email DPT0347 KB 2/15/12
LC34-DPT0333-047.0	20120213		1107				-012	
LC34-DPT0333-050.0	20120213		1115				-013	
LC34-DPT0333-050.5	20120213		1126				-014	
LC34-DPT0333-053.0	20120213		1135				-015	
LC34-DPT0334-034.5	20120213		1250				-016	as per client email DPT0346 KB 2/15/12
LC34-DPT0334-037.0	20120213		1300				-017	
LC34-DPT0334-040.0	20120213		1311				-018	
LC34-DPT0334-045.5	20120213		1312				-019, 024, 025	
LC34-DPT0334-047.0	20120213		1321				-020	KB 2/15/12

SPECIAL INSTRUCTIONS/COMMENTS

See QAPP ☐

TURNAROUND REQUIREMENTS
- ___ RUSH (SURCHARGES APPLY)
- X STANDARD

REQUESTED FAX DATE

REQUESTED REPORT DATE

REPORT REQUIREMENTS
- ___ I. Results Only
- X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
- ___ III. Results + QC and Calibration Summaries
- ___ IV. Data Validation Report with Raw Data
- ___ V. Specialized Forms / Custom Report

Edata X Yes ___ No

INVOICE INFORMATION

PO#

BILL TO:

R1201033

SAMPLE RECEIPT: CONDITION/COOLER TEMP: 2.1°C - 4.1°C CUSTODY SEALS: Y (N)

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature: FED	Signature	Signature: Amy Hentschke	Signature	Signature
Printed Name: David Sizemore	Printed Name	Printed Name	Printed Name: Amy Hentschke	Printed Name	Printed Name
Firm: GeoSyntec	Firm: FED	Firm	Firm: ALS	Firm	Firm
Date/Time: 2/14/12 1700	Date/Time	Date/Time	Date/Time: 2/15/12 0945	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Retained by Client

JSCOC-3/11

Columbia Analytical Services

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

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SR #

CAS Contact

Project Name: LC34	Project Number: TR0272
Project Manager: Cory Rupta	Email Address: CRupta@GeoSyntec.com
Company/Address: GeoSyntec Titusville, FL	
Phone #: 321 269 5880	FAX#
Sampler's Signature:	Sampler's Printed Name: DAVID Sizemore

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

NUMBER OF CONTAINERS

8260(VOC+BA)

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

	CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX			
01	LC34-DPT0334-048.5	-2012-0213	2/13/12	1330	SOIL	4	X	CC pay client email 02/15/12 DPT0348
02	LC34-DPT0334-053.0	-2012-0213	↓	1345	↓	↓		
03	LC34-TB	-2012-0203	NA		Water	3		

SPECIAL INSTRUCTIONS/COMMENTS

See QAPP ☐

TURNAROUND REQUIREMENTS
___ RUSH (SURCHARGES APPLY)
_X_ STANDARD
REQUESTED FAX DATE
REQUESTED REPORT DATE

REPORT REQUIREMENTS
___ I. Results Only
_X_ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
___ V. Speicalized Forms / Custom Report
Edata _X_ Yes ___ No

INVOICE INFORMATION
PO#
BILL TO:
R1201033

SAMPLE RECEIPT: CONDITION/COOLER TEMP: 2.1°C T5.7°C CUSTODY SEALS: Y (N)

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature: Amy Hentschke	Signature	Signature
Printed Name: DAVID Sizemore	Printed Name: Fed	Printed Name	Printed Name: Amy Hentschke	Printed Name	Printed Name
Firm: GeoSyntec	Firm: FED	Firm	Firm: ALS	Firm	Firm
Date/Time: 2/14/12 1700	Date/Time:	Date/Time	Date/Time: 2/15/12 0945	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Retained by Client

JSCOC-3/11

Cooler Receipt and Preservation Check Form

Project/Client Geosyntec Folder Number R1201633

Cooler received on 2/15/12 by: RD COURIER: ALS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO			
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO			N/A
5.	Were Ice or Ice packs present?	YES	NO			
6.	Where did the bottles originate?	ALS/ROC, CLIENT				
7.	Temperature of cooler(s) upon receipt:	5.7°	3.2°	4.6°	2.1°	
	Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 2/15/12 0252

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples:

All Samples held in storage location R-002 by RD on 2/15/12 at 1000

5035 samples placed in storage location F-05 by RD on 2/15/12 at 1000

PC Secondary Review: VB 2/16/12

Cooler Breakdown: Date: 2/15/12 Time: 1330 by: RD

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		N/A

Explain any discrepancies:

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: MeOH lot: 102411-3 prepped 10/26/11, 1-286-002 T-284-002, 102411-3

Other Comments:

* but see email

PC Secondary Review: VB 3/30/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

March 05, 2012 Service Request No: R1201031

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 2/14-16/12/ TR0272A

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory between February 15, 2012 and February 17, 2012. For your reference, these analyses have been assigned our service request number **R1201031**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
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Part of the ALS Group A Campbell Brothers Limited Company
Environmental www.caslab.com ▪ www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

Client:	Geosyntec Consultants	**Service Request No.:**	R1201031
Project:	ESTCP PED LC34/ TR0272A 2/14-16/12	**Date Received:**	2/15-17/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Forty-eight (48) water samples were collected by the client over the period 2/14-16/12 and were received for analysis at Columbia Analytical Services from 2/15-17/12 via a national courier The samples were received at a cooler temperature range of 2.1-5.7°C within the guidelines of 0-6°C. A Trip Blank vial was received broken in the 2/16/12 shipment. Bubbles were noted in some sample aliquots. All are recorded on the Cooler Receipt and Preservation Check Forms immediately following the Chains of Custody forms. The time recorded on the chain of custody for location LC34-BW0001E-052.5-20120216 was incorrect. The correction was corrected on the chain of custody and initialed and dated as per the client's email from 2/17/12.

Volatile Organic Compounds GC/MS

Thirty-eight (38) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except for %D which was outside the 20% limit for the following compounds:
Acetone on the 2/20/12 run Analysis Lot: 280656,
N-Butanol and Methylcyclohexane on the 2/20/12 run Analysis Lot : 280661,
Acetone and Cyclohexane on the 2/21/12 run,
2-Butanone, Acetone, Chloromethane, Cyclohexane, Dichlorodifluoromethane, Methylcyclohexane, on the 2/22/12 run,
and Acetone and Dichlorodifluoromethane on the 2/23/12 run.

Any hits for these compounds on the associated runs should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Site QC was requested and included in the report for locations LC34-IW0071D-I-040.5-20120215 and LC34-IW0002D1-052.5-20120216 (R1201031-029 and -052 respectively). QC was not requested but is included for location LC34-1DW-185539-2012-216D (R1201031-057) All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within QC acceptance limits. The Laboratory Control Samples (LCS) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for a low level hit of 1,2,4-Trichlorobenzene on the 2/23/12 blank.

Approved by Karen Burdes Date 3/6/12

No other analytical or QC problems were encountered.

Volatile Organics GC

Twenty-five (25) samples were analyzed for Organic Acids by HPLC and GC Method RSK-175.

Initial and Continuing Calibration Criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Site QC is included in the report for locations LC34-BW0002A-024.5-20120215 (R1201031-017) for Organic Acids and LC34-BW0003D-045.5-20120215 (R1201031-022) for RSK-175. All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were within acceptance limits. The Acetic Acid was spiked too low to be accurately determined. The recoveries for this compound have been flagged as "#". The Laboratory Control Samples (LCS) and LCS Duplicate (LSCD) recoveries were all within QC limit. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample. Organic Acids were analyzed within the proper holding time.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganic Parameters

Thirty-one (31) water samples were analyzed for TOC by method 9060A, fourteen (14) waters for Alkalinity by method SM 2320B, Sulfide by method SM 4500-S2-F and Bromide, Iodide, Chloride, Nitrate, and Sulfate by IC method 300.0 and Nitrite by method 353.2. Thirteen (13) water samples were analyzed for dissolved metals by ICP method 6010C. These soluble metals were filtered in the laboratory upon receipt of the samples.

All initial and continuing calibration criteria were met for these analyses.

Site QC is included in the report for all requested locations except for Nitrite. An alternate location was analyzed for this parameter due to a laboratory error. Also, Sulfide had insufficient volume for full QC, 3 bottles are required and only 2 were received, so a replicate was analyzed for the requested location. Additional Site QC is also included for Alkalinity and some of the anion compounds. All Matrix Spike and Matrix Spike Duplicate recoveries were within acceptance limits except for Chloride which was outside limits low for both samples. The recoveries have been flagged as "*". All Laboratory Control Sample (LCS) and LCS Duplicate recoveries were within QC limits. The Relative Percent Difference (RPD) calculations were also acceptable for all compounds.

All samples were analyzed within holding times for these analyses.

All Laboratory Method Blanks were free from contamination.

No problems were encountered during the analysis of these samples.

Approved by Karen Burke Date 3/6/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1201031

Lab ID	Client ID
R1201031-001	LC34-RW0007-038.5-20120214
R1201031-002	LC34-RW0007-038.5-20120214
R1201031-003	LC34-RW0008-052.0-20120214
R1201031-004	LC34-RW0008-052.0-20120214
R1201031-005	LC34-BW0002C-038.5-20120214
R1201031-006	LC34-BW0002D-045.5-20120214
R1201031-007	LC34-BW0002E-052.5-20120214
R1201031-008	LC34-BW0002F-059.5-20120214
R1201031-009	LC34-IW0067D-040.5-20120214
R1201031-010	LC34-IW0067D1-068.0-20120214
R1201031-011	LC34-IW0071D1-070.0-20120214
R1201031-012	LC34-FD-20120214-01
R1201031-013	LC34-FD-20120214-02
R1201031-014	LC34-FD-20120214-03
R1201031-015	LC34-TB-20120214-01
R1201031-016	LC34-TB-20120214-02
R1201031-017	LC34-BW0002A-024.5-20120215
R1201031-018	LC34-BW0002B-031.5-20120215
R1201031-019	LC34-BW0003A-024.5-20120215
R1201031-020	LC34-BW0003B-031.5-20120215
R1201031-021	LC34-BW0003C-038.5-20120215
R1201031-022	LC34-BW0003D-045.5-20120215
R1201031-023	LC34-BW0003E-052.5-20120215
R1201031-024	LC34-BW0003F-059.5-20120215
R1201031-025	LC34-IW0002I-027.5-20120215
R1201031-026	LC34-IW0002I-027.5-20120215 Dissolved
R1201031-027	LC34-IW0070D-040.5-20120215
R1201031-028	LC34-IW0070D1-070.0-20120215
R1201031-029	LC34-IW0071D-040.5-20120215
R1201031-030	LC34-IW0076-075.0-20120215
R1201031-031	LC34-IW0076-075.0-20120215 Dissolved
R1201031-032	LC34-FD-20120215-01
R1201031-033	LC34-FD-20120215-02
R1201031-034	LC34-FD-20120215-03
R1201031-035	LC34-TB-20120215-01
R1201031-036	LC34-TB-20120215-02
R1201031-037	LC34-TB-20120215-03
R1201031-038	LC34-BW0001A-024.5-20120216
R1201031-039	LC34-BW0001A-024.5-20120216 Dissolved
R1201031-040	LC34-BW0001B-031.5-20120216
R1201031-041	LC34-BW0001B-031.5-20120216 Dissovled
R1201031-042	LC34-BW0001C-038.5-20120216
R1201031-043	LC34-BW0001C-038.5-20120216 Dissoved
R1201031-044	LC34-BW0001D-045.5-20120216

Lab ID	Client ID
R1201031-045	LC34-BW0001D-045.5-20120216 Dissolved
R1201031-046	LC34-BW0001E-052.5-20120216
R1201031-047	LC34-BW0001E-052.5-20120216 Dissolved
R1201031-048	LC34-BW0001F-059.5-20120216
R1201031-049	LC34-BW0001F-059.5-20120216 Dissolved
R1201031-050	LC34-IW0002D-037.5-20120216
R1201031-051	LC34-IW0002D-037.5-20120216 Dissolved
R1201031-052	LC34-IW0002D1-052.5-20120216
R1201031-053	LC34-IW0002D1-052.5-20120216 Dissolved
R1201031-054	LC34-FD-20120216-01
R1201031-055	LC34-FD-20120216-02
R1201031-056	LC34-FD-20120216-03
R1201031-057	LC34-IDW-185539-20120216
R1201031-058	LC34-TB-20120216-01

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

00006 rev.

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1018
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-RW0007-038.5-20120214		
Lab Code:	R1201031-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**390**		mg/L	2.0	1	NA	2/16/12 13:53	
Bromide	300.0	**8.0**		mg/L	1.0	10	NA	2/15/12 18:23	
Carbon, Total Organic (TOC), Average	9060A	**108**		mg/L	10	10	NA	2/23/12 10:01	
Chloride	300.0	**409**		mg/L	20	100	NA	2/15/12 19:26	
Iodide	300.0	**7.2**		mg/L	2.0	10	NA	2/28/12 16:23	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/15/12 18:23	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/15/12 20:10	
Sulfate	300.0	**4.2**		mg/L	2.0	10	NA	2/15/12 18:23	
Sulfide, Total	SM 4500-S2- F	**15.1**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1018
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-RW0007-038.5-20120214		
Lab Code:	R1201031-002	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/16/12	2/20/12 22:27	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/16/12	2/20/12 22:27	
Manganese, Dissolved	6010C	**15**		µg/L	10	1	2/16/12	2/20/12 22:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1018
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 14:40
Sample Name:	LC34-RW0007-038.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8395.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**5600**		250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	500	U	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	500	U	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1018
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 14:40
Sample Name:	LC34-RW0007-038.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8395.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**560**		250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**6400**		250	12	
156-59-2	cis-1,2-Dichloroethene	**8900**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	250	U	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**250**	I	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	2/20/12 14:40	
Dibromofluoromethane	105	89-119	2/20/12 14:40	
Toluene-d8	103	87-121	2/20/12 14:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1018
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/22/12 14:17
Sample Name:	LC34-RW0007-038.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	280938
Data File Name:	star1454.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**37**		20	
74-85-1	Ethene	**500**		20	
74-82-8	Methane	**1100**		40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1018
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 15:29
Sample Name:	LC34-RW0007-038.5-20120214	**Units:**	mg/L
Lab Code:	R1201031-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007438.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**170**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**49**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**4.9**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1110
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-RW0008-052.0-20120214		
Lab Code:	R1201031-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**300**		mg/L	2.0	1	NA	2/16/12 13:53	
Bromide	300.0	**4.3**		mg/L	1.0	10	NA	2/15/12 18:39	
Carbon, Total Organic (TOC), Average	9060A	**43.5**		mg/L	4.0	4	NA	2/23/12 12:03	
Chloride	300.0	**621**		mg/L	20	100	NA	2/15/12 19:42	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 16:46	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/15/12 18:39	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/15/12 20:11	
Sulfate	300.0	**2.9**		mg/L	2.0	10	NA	2/15/12 18:39	
Sulfide, Total	SM 4500-S2- F	**13.3**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1110
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-RW0008-052.0-20120214		
Lab Code:	R1201031-004	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/16/12	2/20/12 22:33	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/16/12	2/20/12 22:33	
Manganese, Dissolved	6010C	**12**		µg/L	10	1	2/16/12	2/20/12 22:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1110
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 15:10
Sample Name:	LC34-RW0008-052.0-20120214	**Units:**	µg/L
Lab Code:	R1201031-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8396.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**850**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	100	U	100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1110
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 15:10
Sample Name:	LC34-RW0008-052.0-20120214	**Units:**	µg/L
Lab Code:	R1201031-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8396.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**570**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**670**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1100**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**14**	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85-122	2/20/12 15:10	
Dibromofluoromethane	106	89-119	2/20/12 15:10	
Toluene-d8	104	87-121	2/20/12 15:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1110
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-RW0008-052.0-20120214	**Units:**	µg/L
Lab Code:	R1201031-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**13**		5.0	5	NA	2/22/12 12:57		280938	
Ethene	**450**		5.0	5	NA	2/22/12 12:57		280938	
Methane	**510**		20	10	NA	2/22/12 13:11		280938	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1110
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/22/12 00:09
Sample Name:	LC34-RW0008-052.0-20120214	**Units:**	mg/L
Lab Code:	R1201031-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007500.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**91**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**4.8**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.2**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1444
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-BW0002C-038.5-20120214		
Lab Code:	R1201031-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**233**		mg/L	2.0	1	NA	2/16/12 13:53	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	2/15/12 18:54	
Carbon, Total Organic (TOC), Average	9060A	**2.5**		mg/L	1.0	1	NA	2/24/12 21:37	
Chloride	300.0	**50.5**		mg/L	2.0	10	NA	2/17/12 16:15	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 16:54	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/15/12 18:54	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/15/12 20:11	
Sulfate	300.0	**26.2**		mg/L	2.0	10	NA	2/15/12 18:54	
Sulfide, Total	SM 4500-S2- F	**2.4**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1444
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 15:40
Sample Name:	LC34-BW0002C-038.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8397.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	25	U	25	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	25	U	25	1.0	
79-00-5	1,1,2-Trichloroethane	25	U	25	1.2	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**44**		25	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	25	U	25	1.5	
120-82-1	1,2,4-Trichlorobenzene	25	U	25	1.3	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	
106-93-4	1,2-Dibromoethane	25	U	25	1.0	
95-50-1	1,2-Dichlorobenzene	25	U	25	1.0	
107-06-2	1,2-Dichloroethane	25	U	25	1.0	
78-87-5	1,2-Dichloropropane	25	U	25	1.5	
541-73-1	1,3-Dichlorobenzene	25	U	25	1.0	
106-46-7	1,4-Dichlorobenzene	25	U	25	1.0	
71-36-3	n-Butanol	1300	U	1300	53	
78-93-3	2-Butanone (MEK)	50	U	50	2.6	
591-78-6	2-Hexanone	50	U	50	1.8	
108-10-1	4-Methyl-2-pentanone	50	U	50	1.4	
67-64-1	Acetone	50	U	50	4.9	
71-43-2	Benzene	25	U	25	1.1	
75-27-4	Bromodichloromethane	25	U	25	1.0	
75-25-2	Bromoform	25	U	25	1.4	
74-83-9	Bromomethane	25	U	25	1.6	
75-15-0	Carbon Disulfide	50	U	50	1.0	
56-23-5	Carbon Tetrachloride	25	U	25	1.4	
108-90-7	Chlorobenzene	25	U	25	1.0	
75-00-3	Chloroethane	25	U	25	1.6	
67-66-3	Chloroform	25	U	25	1.1	
74-87-3	Chloromethane	25	U	25	1.2	
110-82-7	Cyclohexane	50	U	50	1.2	
124-48-1	Dibromochloromethane	25	U	25	1.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	
75-09-2	Dichloromethane	25	U	25	1.1	
100-41-4	Ethylbenzene	25	U	25	1.0	
98-82-8	Isopropylbenzene (Cumene)	25	U	25	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1444
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 15:40
Sample Name:	LC34-BW0002C-038.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8397.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	50	U	50	1.2	
1634-04-4	Methyl tert-Butyl Ether	25	U	25	1.0	
108-87-2	Methylcyclohexane	50	U	50	1.3	
100-42-5	Styrene	25	U	25	1.0	
127-18-4	Tetrachloroethene (PCE)	25	U	25	1.0	
108-88-3	Toluene	25	U	25	1.0	
79-01-6	Trichloroethene (TCE)	**2.1**	I	25	1.2	
75-69-4	Trichlorofluoromethane (CFC 11)	25	U	25	1.0	
75-01-4	Vinyl Chloride	**620**		25	1.2	
156-59-2	cis-1,2-Dichloroethene	**580**		25	1.0	
10061-01-5	cis-1,3-Dichloropropene	25	U	25	1.0	
179601-23-1	m,p-Xylenes	25	U	25	1.0	
123-86-4	n-Butyl Acetate	25	U	25	1.1	
95-47-6	o-Xylene	25	U	25	1.0	
156-60-5	trans-1,2-Dichloroethene	**54**		25	1.0	
10061-02-6	trans-1,3-Dichloropropene	25	U	25	1.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85-122	2/20/12 15:40	
Dibromofluoromethane	107	89-119	2/20/12 15:40	
Toluene-d8	103	87-121	2/20/12 15:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1444
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/22/12 13:43
Sample Name:	LC34-BW0002C-038.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	280938
Data File Name:	star1452.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	2.0	U	2.0	
74-85-1	Ethene	**170**		2.0	
74-82-8	Methane	**140**		4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1444
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 17:36
Sample Name:	LC34-BW0002C-038.5-20120214	**Units:**	mg/L
Lab Code:	R1201031-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007442.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1410
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-BW0002D-045.5-20120214		
Lab Code:	R1201031-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**6.5**		mg/L	1.0	10	NA	2/20/12 23:46	
Carbon, Total Organic (TOC), Average	9060A	**88**		mg/L	10	10	NA	2/24/12 22:18	
Iodide	300.0	**2.8**		mg/L	2.0	10	NA	2/28/12 17:02	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1410
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 18:39
Sample Name:	LC34-BW0002D-045.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8379.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**52**	I	500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1100	
78-93-3	2-Butanone (MEK)	1000	U	1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	1000	U	1000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	500	U	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	1000	U	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	500	U	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1410
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 18:39
Sample Name:	LC34-BW0002D-045.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8379.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	**70**	I	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	**29**	I	500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**6500**		500	23	
156-59-2	cis-1,2-Dichloroethene	**13000**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	500	U	500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**120**	I	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	2/17/12 18:39	
Dibromofluoromethane	102	89-119	2/17/12 18:39	
Toluene-d8	98	87-121	2/17/12 18:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1410
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-BW0002D-045.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-006	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**41**		1.0	1	NA	2/23/12 09:39		281108	
Ethene	**180**		2.5	2.5	NA	2/23/12 09:50		281108	
Methane	**110**		5.0	2.5	NA	2/23/12 09:50		281108	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1410
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 19:11
Sample Name:	LC34-BW0002D-045.5-20120214	**Units:**	mg/L
Lab Code:	R1201031-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007445.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**190**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**20**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**2.1**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1326
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-BW0002E-052.5-20120214		
Lab Code:	R1201031-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.0**		mg/L	1.0	10	NA	2/21/12 00:21	
Carbon, Total Organic (TOC), Average	9060A	**4.6**		mg/L	1.0	1	NA	2/24/12 00:20	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 17:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1326
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 14:39
Sample Name:	LC34-BW0002E-052.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8371.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**1.4**	I	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.41**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1326
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 14:39
Sample Name:	LC34-BW0002E-052.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8371.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**22**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**2.3**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.62**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	2/17/12 14:39	
Dibromofluoromethane	102	89-119	2/17/12 14:39	
Toluene-d8	98	87-121	2/17/12 14:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1326
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 10:00
Sample Name:	LC34-BW0002E-052.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1462.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**1.7**		1.0	
74-85-1	Ethene	**90**		1.0	
74-82-8	Methane	**46**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1326
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 20:14
Sample Name:	LC34-BW0002E-052.5-20120214	**Units:**	mg/L
Lab Code:	R1201031-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007447.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**4.3**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1245
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-BW0002F-059.5-20120214		
Lab Code:	R1201031-008	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.0**		mg/L	1.0	10	NA	2/21/12 00:32	
Carbon, Total Organic (TOC), Average	9060A	**3.1**		mg/L	1.0	1	NA	2/25/12 01:01	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 17:17	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1245
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 15:09
Sample Name:	LC34-BW0002F-059.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8372.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1245
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 15:09
Sample Name:	LC34-BW0002F-059.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8372.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**6.3**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**0.84**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.40**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	2/17/12 15:09	
Dibromofluoromethane	102	89-119	2/17/12 15:09	
Toluene-d8	98	87-121	2/17/12 15:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1245
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/23/12 10:11
Sample Name:	LC34-BW0002F-059.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-008	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1463.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	**6.9**		1.0	
74-82-8	Methane	**8.2**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1245
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/20/12 21:17
Sample Name:	LC34-BW0002F-059.5-20120214	**Units:**	mg/L
Lab Code:	R1201031-008	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007449.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1415
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-IW0067D-040.5-20120214		
Lab Code:	R1201031-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.6**		mg/L	1.0	1	NA	2/25/12 01:42	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1415
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 15:39
Sample Name:	LC34-IW0067D-040.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8373.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1415
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 15:39
Sample Name:	LC34-IW0067D-040.5-20120214	**Units:**	µg/L
Lab Code:	R1201031-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8373.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**8.4**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**0.68**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	2/17/12 15:39	
Dibromofluoromethane	102	89-119	2/17/12 15:39	
Toluene-d8	98	87-121	2/17/12 15:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1346
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-IW0067D1-068.0-20120214		
Lab Code:	R1201031-010	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.0**		mg/L	1.0	1	NA	2/25/12 02:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1346
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 16:09
Sample Name:	LC34-IW0067D1-068.0-20120214	**Units:**	µg/L
Lab Code:	R1201031-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8374.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1346
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 16:09
Sample Name:	LC34-IW0067D1-068.0-20120214	**Units:**	µg/L
Lab Code:	R1201031-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8374.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	2/17/12 16:09	
Dibromofluoromethane	102	89-119	2/17/12 16:09	
Toluene-d8	98	87-121	2/17/12 16:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1454
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-IW0071D1-070.0-20120214		
Lab Code:	R1201031-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.1**		mg/L	1.0	1	NA	2/25/12 03:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1454
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 16:39
Sample Name:	LC34-IW0071D1-070.0-20120214	**Units:**	µg/L
Lab Code:	R1201031-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8375.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12 1454
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 16:39
Sample Name:	LC34-IW0071D1-070.0-20120214	**Units:**	µg/L
Lab Code:	R1201031-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8375.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	2/17/12 16:39	
Dibromofluoromethane	102	89-119	2/17/12 16:39	
Toluene-d8	99	87-121	2/17/12 16:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-FD-20120214-01	**Units:**	µg/L
Lab Code:	R1201031-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	12	50	NA	2/21/12 13:43		280843	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	2/21/12 13:43		280843	
1,1,2-Trichloroethane	250	U	250	12	50	NA	2/21/12 13:43		280843	
1,1,2-Trichloro-1,2,2-trifluoroethane	**9500**		250	16	50	NA	2/21/12 13:43		280843	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	2/21/12 13:43		280843	
1,1-Dichloroethene (1,1-DCE)	**42**	I	250	15	50	NA	2/21/12 13:43		280843	
1,2,4-Trichlorobenzene	250	U	250	13	50	NA	2/21/12 13:43		280843	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	50	NA	2/21/12 13:43		280843	
1,2-Dibromoethane	250	U	250	10	50	NA	2/21/12 13:43		280843	
1,2-Dichlorobenzene	250	U	250	10	50	NA	2/21/12 13:43		280843	
1,2-Dichloroethane	250	U	250	10	50	NA	2/21/12 13:43		280843	
1,2-Dichloropropane	250	U	250	15	50	NA	2/21/12 13:43		280843	
1,3-Dichlorobenzene	250	U	250	10	50	NA	2/21/12 13:43		280843	
1,4-Dichlorobenzene	250	U	250	10	50	NA	2/21/12 13:43		280843	
n-Butanol	13000	U	13000	530	50	NA	2/21/12 13:43		280843	
2-Butanone (MEK)	500	U	500	26	50	NA	2/21/12 13:43		280843	
2-Hexanone	500	U	500	18	50	NA	2/21/12 13:43		280843	
4-Methyl-2-pentanone	500	U	500	14	50	NA	2/21/12 13:43		280843	
Acetone	**240**	I	500	49	50	NA	2/21/12 13:43		280843	
Benzene	250	U	250	11	50	NA	2/21/12 13:43		280843	
Bromodichloromethane	250	U	250	10	50	NA	2/21/12 13:43		280843	
Bromoform	250	U	250	14	50	NA	2/21/12 13:43		280843	
Bromomethane	250	U	250	16	50	NA	2/21/12 13:43		280843	
Carbon Disulfide	500	U	500	10	50	NA	2/21/12 13:43		280843	
Carbon Tetrachloride	250	U	250	14	50	NA	2/21/12 13:43		280843	
Chlorobenzene	250	U	250	10	50	NA	2/21/12 13:43		280843	
Chloroethane	250	U	250	16	50	NA	2/21/12 13:43		280843	
Chloroform	250	U	250	11	50	NA	2/21/12 13:43		280843	
Chloromethane	250	U	250	12	50	NA	2/21/12 13:43		280843	
Cyclohexane	500	U	500	12	50	NA	2/21/12 13:43		280843	
Dibromochloromethane	250	U	250	10	50	NA	2/21/12 13:43		280843	
Dichlorodifluoromethane (CFC 12)	**310**		250	29	50	NA	2/21/12 13:43		280843	
Dichloromethane	**14**	I	250	11	50	NA	2/21/12 13:43		280843	
Ethylbenzene	250	U	250	10	50	NA	2/21/12 13:43		280843	
Isopropylbenzene (Cumene)	250	U	250	10	50	NA	2/21/12 13:43		280843	
Methyl Acetate	500	U	500	12	50	NA	2/21/12 13:43		280843	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-FD-20120214-01	**Units:**	µg/L
Lab Code:	R1201031-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	10	50	NA	2/21/12 13:43		280843	
Methylcyclohexane	500	U	500	13	50	NA	2/21/12 13:43		280843	
Styrene	250	U	250	10	50	NA	2/21/12 13:43		280843	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	2/21/12 13:43		280843	
Toluene	250	U	250	10	50	NA	2/21/12 13:43		280843	
Trichloroethene (TCE)	**1100**		250	12	50	NA	2/21/12 13:43		280843	
Trichlorofluoromethane (CFC 11)	250	U	250	10	50	NA	2/21/12 13:43		280843	
Vinyl Chloride	**7600**		250	12	50	NA	2/21/12 13:43		280843	
cis-1,2-Dichloroethene	**9100**		500	20	100	NA	2/21/12 14:14		280843	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	2/21/12 13:43		280843	
m,p-Xylenes	250	U	250	10	50	NA	2/21/12 13:43		280843	
n-Butyl Acetate	250	U	250	11	50	NA	2/21/12 13:43		280843	
o-Xylene	250	U	250	10	50	NA	2/21/12 13:43		280843	
trans-1,2-Dichloroethene	**210**	I	250	10	50	NA	2/21/12 13:43		280843	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	2/21/12 13:43		280843	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/21/12 13:43	
Dibromofluoromethane	99	89-119	2/21/12 13:43	
Toluene-d8	99	87-121	2/21/12 13:43	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-FD-20120214-02		
Lab Code:	R1201031-013	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/16/12	2/20/12 22:39	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/16/12	2/20/12 22:39	
Manganese, Dissolved	6010C	**12**		µg/L	10	1	2/16/12	2/20/12 22:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
Sample Name:	LC34-FD-20120214-03		
Lab Code:	R1201031-014	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**46.8**		mg/L	2.0	10	NA	2/20/12 14:26	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/15/12 19:10	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/15/12 20:12	
Sulfate	300.0	**25.9**		mg/L	2.0	10	NA	2/15/12 19:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 13:40
Sample Name:	LC34-TB-20120214-01	**Units:**	µg/L
Lab Code:	R1201031-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8369.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 13:40
Sample Name:	LC34-TB-20120214-01	**Units:**	µg/L
Lab Code:	R1201031-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8369.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	2/17/12 13:40	
Dibromofluoromethane	101	89-119	2/17/12 13:40	
Toluene-d8	98	87-121	2/17/12 13:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 14:10
Sample Name:	LC34-TB-20120214-02	**Units:**	µg/L
Lab Code:	R1201031-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8370.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/14/12
Sample Matrix:	Water	**Date Received:**	2/15/12
		Date Analyzed:	2/17/12 14:10
Sample Name:	LC34-TB-20120214-02	**Units:**	µg/L
Lab Code:	R1201031-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8370.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	2/17/12 14:10	
Dibromofluoromethane	103	89-119	2/17/12 14:10	
Toluene-d8	98	87-121	2/17/12 14:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1112
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0002A-024.5-20120215		
Lab Code:	R1201031-017	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.7**		mg/L	1.0	10	NA	2/21/12 00:44	
Carbon, Total Organic (TOC), Average	9060A	**41.0**		mg/L	4.0	4	NA	2/25/12 05:06	
Iodide	300.0	**2.6**		mg/L	2.0	10	NA	2/28/12 17:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1112
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0002A-024.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	2/17/12 19:08		280472	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	2/17/12 19:08		280472	
1,1,2-Trichloroethane	500	U	500	23	100	NA	2/17/12 19:08		280472	
1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	31	100	NA	2/17/12 19:08		280472	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	2/17/12 19:08		280472	
1,1-Dichloroethene (1,1-DCE)	**41**	I	500	29	100	NA	2/17/12 19:08		280472	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	2/17/12 19:08		280472	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	2/17/12 19:08		280472	
1,2-Dibromoethane	500	U	500	20	100	NA	2/17/12 19:08		280472	
1,2-Dichlorobenzene	500	U	500	20	100	NA	2/17/12 19:08		280472	
1,2-Dichloroethane	500	U	500	20	100	NA	2/17/12 19:08		280472	
1,2-Dichloropropane	500	U	500	29	100	NA	2/17/12 19:08		280472	
1,3-Dichlorobenzene	500	U	500	20	100	NA	2/17/12 19:08		280472	
1,4-Dichlorobenzene	500	U	500	20	100	NA	2/17/12 19:08		280472	
n-Butanol	25000	U	25000	1100	100	NA	2/17/12 19:08		280472	
2-Butanone (MEK)	1000	U	1000	51	100	NA	2/17/12 19:08		280472	
2-Hexanone	1000	U	1000	35	100	NA	2/17/12 19:08		280472	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	2/17/12 19:08		280472	
Acetone	1000	U	1000	98	100	NA	2/17/12 19:08		280472	
Benzene	500	U	500	21	100	NA	2/17/12 19:08		280472	
Bromodichloromethane	500	U	500	20	100	NA	2/17/12 19:08		280472	
Bromoform	500	U	500	27	100	NA	2/17/12 19:08		280472	
Bromomethane	500	U	500	31	100	NA	2/17/12 19:08		280472	
Carbon Disulfide	1000	U	1000	20	100	NA	2/17/12 19:08		280472	
Carbon Tetrachloride	500	U	500	27	100	NA	2/17/12 19:08		280472	
Chlorobenzene	500	U	500	20	100	NA	2/17/12 19:08		280472	
Chloroethane	500	U	500	31	100	NA	2/17/12 19:08		280472	
Chloroform	500	U	500	22	100	NA	2/17/12 19:08		280472	
Chloromethane	500	U	500	24	100	NA	2/17/12 19:08		280472	
Cyclohexane	1000	U	1000	24	100	NA	2/17/12 19:08		280472	
Dibromochloromethane	500	U	500	20	100	NA	2/17/12 19:08		280472	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	2/17/12 19:08		280472	
Dichloromethane	500	U	500	22	100	NA	2/17/12 19:08		280472	
Ethylbenzene	500	U	500	20	100	NA	2/17/12 19:08		280472	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	2/17/12 19:08		280472	
Methyl Acetate	**140**	I	1000	23	100	NA	2/17/12 19:08		280472	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1112
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0002A-024.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	2/17/12 19:08		280472	
Methylcyclohexane	1000	U	1000	25	100	NA	2/17/12 19:08		280472	
Styrene	500	U	500	20	100	NA	2/17/12 19:08		280472	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	2/17/12 19:08		280472	
Toluene	500	U	500	20	100	NA	2/17/12 19:08		280472	
Trichloroethene (TCE)	**51**	I	500	23	100	NA	2/17/12 19:08		280472	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	2/17/12 19:08		280472	
Vinyl Chloride	**7800**		500	23	100	NA	2/17/12 19:08		280472	
cis-1,2-Dichloroethene	**46000**		2500	100	500	NA	2/20/12 16:09		280661	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	2/17/12 19:08		280472	
m,p-Xylenes	500	U	500	20	100	NA	2/17/12 19:08		280472	
n-Butyl Acetate	500	U	500	21	100	NA	2/17/12 19:08		280472	
o-Xylene	500	U	500	20	100	NA	2/17/12 19:08		280472	
trans-1,2-Dichloroethene	**380**	I	500	20	100	NA	2/17/12 19:08		280472	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	2/17/12 19:08		280472	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	2/17/12 19:08	
Dibromofluoromethane	104	89-119	2/17/12 19:08	
Toluene-d8	98	87-121	2/17/12 19:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1112
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/23/12 10:31
Sample Name:	LC34-BW0002A-024.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-017	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1465.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**98**		5.0	
74-85-1	Ethene	**140**		5.0	
74-82-8	Methane	**410**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1112
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 22:20
Sample Name:	LC34-BW0002A-024.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-017	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007451.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**100**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1024
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0002B-031.5-20120215		
Lab Code:	R1201031-018	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	2/21/12 01:07	
Carbon, Total Organic (TOC), Average	9060A	**11.4**		mg/L	1.0	1	NA	2/25/12 05:46	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 17:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1024
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 21:36
Sample Name:	LC34-BW0002B-031.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280878
Data File Name:	J:\ACQUDATA\msvoa10\data\022112\D8440.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	130	U	130	5.8	
79-34-5	1,1,2,2-Tetrachloroethane	130	U	130	5.0	
79-00-5	1,1,2-Trichloroethane	130	U	130	5.8	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**130**		130	7.8	
75-34-3	1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	130	U	130	7.3	
120-82-1	1,2,4-Trichlorobenzene	130	U	130	6.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	
106-93-4	1,2-Dibromoethane	130	U	130	5.0	
95-50-1	1,2-Dichlorobenzene	130	U	130	5.0	
107-06-2	1,2-Dichloroethane	130	U	130	5.0	
78-87-5	1,2-Dichloropropane	130	U	130	7.1	
541-73-1	1,3-Dichlorobenzene	130	U	130	5.0	
106-46-7	1,4-Dichlorobenzene	130	U	130	5.0	
71-36-3	n-Butanol	6300	U	6300	270	
78-93-3	2-Butanone (MEK)	250	U	250	13	
591-78-6	2-Hexanone	250	U	250	8.8	
108-10-1	4-Methyl-2-pentanone	250	U	250	6.8	
67-64-1	Acetone	250	U	250	25	
71-43-2	Benzene	130	U	130	5.3	
75-27-4	Bromodichloromethane	130	U	130	5.0	
75-25-2	Bromoform	130	U	130	6.8	
74-83-9	Bromomethane	130	U	130	7.8	
75-15-0	Carbon Disulfide	**7.5**	I	250	5.0	
56-23-5	Carbon Tetrachloride	130	U	130	6.8	
108-90-7	Chlorobenzene	130	U	130	5.0	
75-00-3	Chloroethane	130	U	130	7.8	
67-66-3	Chloroform	130	U	130	5.5	
74-87-3	Chloromethane	130	U	130	6.0	
110-82-7	Cyclohexane	250	U	250	6.0	
124-48-1	Dibromochloromethane	130	U	130	5.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	130	U	130	15	
75-09-2	Dichloromethane	130	U	130	5.5	
100-41-4	Ethylbenzene	130	U	130	5.0	
98-82-8	Isopropylbenzene (Cumene)	130	U	130	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1024
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 21:36
Sample Name:	LC34-BW0002B-031.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280878
Data File Name:	J:\ACQUDATA\msvoa10\data\022112\D8440.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	250	U	250	5.8	
1634-04-4	Methyl tert-Butyl Ether	130	U	130	5.0	
108-87-2	Methylcyclohexane	250	U	250	6.3	
100-42-5	Styrene	130	U	130	5.0	
127-18-4	Tetrachloroethene (PCE)	130	U	130	5.0	
108-88-3	Toluene	130	U	130	5.0	
79-01-6	Trichloroethene (TCE)	**41**	I	130	5.8	
75-69-4	Trichlorofluoromethane (CFC 11)	130	U	130	5.0	
75-01-4	Vinyl Chloride	**1800**		130	5.8	
156-59-2	cis-1,2-Dichloroethene	**4900**		130	5.0	
10061-01-5	cis-1,3-Dichloropropene	130	U	130	5.0	
179601-23-1	m,p-Xylenes	130	U	130	5.0	
123-86-4	n-Butyl Acetate	130	U	130	5.3	
95-47-6	o-Xylene	130	U	130	5.0	
156-60-5	trans-1,2-Dichloroethene	**170**		130	5.0	
10061-02-6	trans-1,3-Dichloropropene	130	U	130	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85-122	2/21/12 21:36	
Dibromofluoromethane	105	89-119	2/21/12 21:36	
Toluene-d8	102	87-121	2/21/12 21:36	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1024
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0002B-031.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-018	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**4.5**		1.0	1	NA	2/23/12 10:43		281108	
Ethene	**110**		2.0	2	NA	2/23/12 11:42		281108	
Methane	**150**		4.0	2	NA	2/23/12 11:42		281108	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1024
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 02:02
Sample Name:	LC34-BW0002B-031.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-018	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007458.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**19**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1305
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003A-024.5-20120215		
Lab Code:	R1201031-019	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	2/21/12 01:18	
Carbon, Total Organic (TOC), Average	9060A	**2.6**		mg/L	1.0	1	NA	2/25/12 07:49	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 17:56	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1305
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 14:44
Sample Name:	LC34-BW0003A-024.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6420.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	500	U	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	500	U	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	**66**	I	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1305
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 14:44
Sample Name:	LC34-BW0003A-024.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6420.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**1100**		250	12	
156-59-2	cis-1,2-Dichloroethene	**6800**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	250	U	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**220**	I	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/21/12 14:44	
Dibromofluoromethane	99	89-119	2/21/12 14:44	
Toluene-d8	100	87-121	2/21/12 14:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1305
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/23/12 11:52
Sample Name:	LC34-BW0003A-024.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-019	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1471.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	**5.4**		1.0	
74-82-8	Methane	**15**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1305
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 03:05
Sample Name:	LC34-BW0003A-024.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-019	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007460.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1228
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003B-031.5-20120215		
Lab Code:	R1201031-020	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	2/21/12 01:53	
Carbon, Total Organic (TOC), Average	9060A	2.7		mg/L	1.0	1	NA	2/25/12 08:29	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 18:04	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1228
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003B-031.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	12	50	NA	2/21/12 15:15		280843	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	2/21/12 15:15		280843	
1,1,2-Trichloroethane	250	U	250	12	50	NA	2/21/12 15:15		280843	
1,1,2-Trichloro-1,2,2-trifluoroethane	**31**	I	250	16	50	NA	2/21/12 15:15		280843	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	2/21/12 15:15		280843	
1,1-Dichloroethene (1,1-DCE)	**17**	I	250	15	50	NA	2/21/12 15:15		280843	
1,2,4-Trichlorobenzene	250	U	250	13	50	NA	2/21/12 15:15		280843	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	50	NA	2/21/12 15:15		280843	
1,2-Dibromoethane	250	U	250	10	50	NA	2/21/12 15:15		280843	
1,2-Dichlorobenzene	250	U	250	10	50	NA	2/21/12 15:15		280843	
1,2-Dichloroethane	250	U	250	10	50	NA	2/21/12 15:15		280843	
1,2-Dichloropropane	250	U	250	15	50	NA	2/21/12 15:15		280843	
1,3-Dichlorobenzene	250	U	250	10	50	NA	2/21/12 15:15		280843	
1,4-Dichlorobenzene	250	U	250	10	50	NA	2/21/12 15:15		280843	
n-Butanol	13000	U	13000	530	50	NA	2/21/12 15:15		280843	
2-Butanone (MEK)	500	U	500	26	50	NA	2/21/12 15:15		280843	
2-Hexanone	500	U	500	18	50	NA	2/21/12 15:15		280843	
4-Methyl-2-pentanone	500	U	500	14	50	NA	2/21/12 15:15		280843	
Acetone	500	U	500	49	50	NA	2/21/12 15:15		280843	
Benzene	250	U	250	11	50	NA	2/21/12 15:15		280843	
Bromodichloromethane	250	U	250	10	50	NA	2/21/12 15:15		280843	
Bromoform	250	U	250	14	50	NA	2/21/12 15:15		280843	
Bromomethane	250	U	250	16	50	NA	2/21/12 15:15		280843	
Carbon Disulfide	500	U	500	10	50	NA	2/21/12 15:15		280843	
Carbon Tetrachloride	250	U	250	14	50	NA	2/21/12 15:15		280843	
Chlorobenzene	250	U	250	10	50	NA	2/21/12 15:15		280843	
Chloroethane	250	U	250	16	50	NA	2/21/12 15:15		280843	
Chloroform	250	U	250	11	50	NA	2/21/12 15:15		280843	
Chloromethane	250	U	250	12	50	NA	2/21/12 15:15		280843	
Cyclohexane	500	U	500	12	50	NA	2/21/12 15:15		280843	
Dibromochloromethane	250	U	250	10	50	NA	2/21/12 15:15		280843	
Dichlorodifluoromethane (CFC 12)	**180**	I	250	29	50	NA	2/21/12 15:15		280843	
Dichloromethane	250	U	250	11	50	NA	2/21/12 15:15		280843	
Ethylbenzene	250	U	250	10	50	NA	2/21/12 15:15		280843	
Isopropylbenzene (Cumene)	250	U	250	10	50	NA	2/21/12 15:15		280843	
Methyl Acetate	500	U	500	12	50	NA	2/21/12 15:15		280843	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1228
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003B-031.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	10	50	NA	2/21/12 15:15		280843	
Methylcyclohexane	500	U	500	13	50	NA	2/21/12 15:15		280843	
Styrene	250	U	250	10	50	NA	2/21/12 15:15		280843	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	2/21/12 15:15		280843	
Toluene	250	U	250	10	50	NA	2/21/12 15:15		280843	
Trichloroethene (TCE)	250	U	250	12	50	NA	2/21/12 15:15		280843	
Trichlorofluoromethane (CFC 11)	250	U	250	10	50	NA	2/21/12 15:15		280843	
Vinyl Chloride	**1900**		250	12	50	NA	2/21/12 15:15		280843	
cis-1,2-Dichloroethene	**8600**		500	20	100	NA	2/22/12 14:51		281034	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	2/21/12 15:15		280843	
m,p-Xylenes	250	U	250	10	50	NA	2/21/12 15:15		280843	
n-Butyl Acetate	250	U	250	11	50	NA	2/21/12 15:15		280843	
o-Xylene	250	U	250	10	50	NA	2/21/12 15:15		280843	
trans-1,2-Dichloroethene	**360**		250	10	50	NA	2/21/12 15:15		280843	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	2/21/12 15:15		280843	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/21/12 15:15	
Dibromofluoromethane	99	89-119	2/21/12 15:15	
Toluene-d8	100	87-121	2/21/12 15:15	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1228
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/23/12 12:14
Sample Name:	LC34-BW0003B-031.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-020	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1473.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	**11**		1.0	
74-82-8	Methane	**24**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1228
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 04:08
Sample Name:	LC34-BW0003B-031.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-020	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007462.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1150
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003C-038.5-20120215		
Lab Code:	R1201031-021	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**308**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	2/16/12 13:52	
Carbon, Total Organic (TOC), Average	9060A	**6.2**		mg/L	1.0	1	NA	2/25/12 09:10	
Chloride	300.0	**237**		mg/L	10	50	NA	2/17/12 17:47	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 18:27	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/16/12 13:52	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/16/12 18:23	
Sulfate	300.0	**35.3**		mg/L	2.0	10	NA	2/16/12 13:52	
Sulfide, Total	SM 4500-S2- F	**4.2**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1150
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003C-038.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	12	50	NA	2/20/12 21:26		280656	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	2/20/12 21:26		280656	
1,1,2-Trichloroethane	250	U	250	12	50	NA	2/20/12 21:26		280656	
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	16	50	NA	2/20/12 21:26		280656	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	2/20/12 21:26		280656	
1,1-Dichloroethene (1,1-DCE)	**18**	I	250	15	50	NA	2/20/12 21:26		280656	
1,2,4-Trichlorobenzene	250	U	250	13	50	NA	2/20/12 21:26		280656	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	50	NA	2/20/12 21:26		280656	
1,2-Dibromoethane	250	U	250	10	50	NA	2/20/12 21:26		280656	
1,2-Dichlorobenzene	250	U	250	10	50	NA	2/20/12 21:26		280656	
1,2-Dichloroethane	250	U	250	10	50	NA	2/20/12 21:26		280656	
1,2-Dichloropropane	250	U	250	15	50	NA	2/20/12 21:26		280656	
1,3-Dichlorobenzene	250	U	250	10	50	NA	2/20/12 21:26		280656	
1,4-Dichlorobenzene	250	U	250	10	50	NA	2/20/12 21:26		280656	
n-Butanol	13000	U	13000	530	50	NA	2/20/12 21:26		280656	
2-Butanone (MEK)	500	U	500	26	50	NA	2/20/12 21:26		280656	
2-Hexanone	500	U	500	18	50	NA	2/20/12 21:26		280656	
4-Methyl-2-pentanone	500	U	500	14	50	NA	2/20/12 21:26		280656	
Acetone	500	U	500	49	50	NA	2/20/12 21:26		280656	
Benzene	250	U	250	11	50	NA	2/20/12 21:26		280656	
Bromodichloromethane	250	U	250	10	50	NA	2/20/12 21:26		280656	
Bromoform	250	U	250	14	50	NA	2/20/12 21:26		280656	
Bromomethane	250	U	250	16	50	NA	2/20/12 21:26		280656	
Carbon Disulfide	**24**	I	500	10	50	NA	2/20/12 21:26		280656	
Carbon Tetrachloride	250	U	250	14	50	NA	2/20/12 21:26		280656	
Chlorobenzene	250	U	250	10	50	NA	2/20/12 21:26		280656	
Chloroethane	250	U	250	16	50	NA	2/20/12 21:26		280656	
Chloroform	250	U	250	11	50	NA	2/20/12 21:26		280656	
Chloromethane	250	U	250	12	50	NA	2/20/12 21:26		280656	
Cyclohexane	500	U	500	12	50	NA	2/20/12 21:26		280656	
Dibromochloromethane	250	U	250	10	50	NA	2/20/12 21:26		280656	
Dichlorodifluoromethane (CFC 12)	250	U	250	29	50	NA	2/20/12 21:26		280656	
Dichloromethane	250	U	250	11	50	NA	2/20/12 21:26		280656	
Ethylbenzene	250	U	250	10	50	NA	2/20/12 21:26		280656	
Isopropylbenzene (Cumene)	250	U	250	10	50	NA	2/20/12 21:26		280656	
Methyl Acetate	500	U	500	12	50	NA	2/20/12 21:26		280656	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1150
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003C-038.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	10	50	NA	2/20/12 21:26		280656	
Methylcyclohexane	500	U	500	13	50	NA	2/20/12 21:26		280656	
Styrene	250	U	250	10	50	NA	2/20/12 21:26		280656	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	2/20/12 21:26		280656	
Toluene	250	U	250	10	50	NA	2/20/12 21:26		280656	
Trichloroethene (TCE)	250	U	250	12	50	NA	2/20/12 21:26		280656	
Trichlorofluoromethane (CFC 11)	250	U	250	10	50	NA	2/20/12 21:26		280656	
Vinyl Chloride	**14000**		500	23	100	NA	2/21/12 15:46		280843	
cis-1,2-Dichloroethene	**16000**		500	20	100	NA	2/21/12 15:46		280843	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	2/20/12 21:26		280656	
m,p-Xylenes	250	U	250	10	50	NA	2/20/12 21:26		280656	
n-Butyl Acetate	250	U	250	11	50	NA	2/20/12 21:26		280656	
o-Xylene	250	U	250	10	50	NA	2/20/12 21:26		280656	
trans-1,2-Dichloroethene	**600**		250	10	50	NA	2/20/12 21:26		280656	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	2/20/12 21:26		280656	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/20/12 21:26	
Dibromofluoromethane	98	89-119	2/20/12 21:26	
Toluene-d8	100	87-121	2/20/12 21:26	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1150
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/23/12 12:33
Sample Name:	LC34-BW0003C-038.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-021	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1475.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	10	U	10	
74-85-1	Ethene	**640**		10	
74-82-8	Methane	**240**		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1150
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 05:11
Sample Name:	LC34-BW0003C-038.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-021	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007464.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**6.8**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1340
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003D-045.5-20120215		
Lab Code:	R1201031-022	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**5.7**		mg/L	1.0	10	NA	2/21/12 02:27	
Carbon, Total Organic (TOC), Average	9060A	**98**		mg/L	10	10	NA	2/25/12 09:51	
Iodide	300.0	**3.3**		mg/L	2.0	10	NA	2/28/12 18:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1340
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 21:56
Sample Name:	LC34-BW0003D-045.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6400.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	130	U	130	5.8	
79-34-5	1,1,2,2-Tetrachloroethane	130	U	130	5.0	
79-00-5	1,1,2-Trichloroethane	130	U	130	5.8	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**590**		130	7.8	
75-34-3	1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**8.3**	I	130	7.3	
120-82-1	1,2,4-Trichlorobenzene	130	U	130	6.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	
106-93-4	1,2-Dibromoethane	130	U	130	5.0	
95-50-1	1,2-Dichlorobenzene	130	U	130	5.0	
107-06-2	1,2-Dichloroethane	130	U	130	5.0	
78-87-5	1,2-Dichloropropane	130	U	130	7.1	
541-73-1	1,3-Dichlorobenzene	130	U	130	5.0	
106-46-7	1,4-Dichlorobenzene	130	U	130	5.0	
71-36-3	n-Butanol	6300	U	6300	270	
78-93-3	2-Butanone (MEK)	250	U	250	13	
591-78-6	2-Hexanone	250	U	250	8.8	
108-10-1	4-Methyl-2-pentanone	250	U	250	6.8	
67-64-1	Acetone	250	U	250	25	
71-43-2	Benzene	130	U	130	5.3	
75-27-4	Bromodichloromethane	130	U	130	5.0	
75-25-2	Bromoform	130	U	130	6.8	
74-83-9	Bromomethane	130	U	130	7.8	
75-15-0	Carbon Disulfide	**10**	I	250	5.0	
56-23-5	Carbon Tetrachloride	130	U	130	6.8	
108-90-7	Chlorobenzene	130	U	130	5.0	
75-00-3	Chloroethane	130	U	130	7.8	
67-66-3	Chloroform	130	U	130	5.5	
74-87-3	Chloromethane	130	U	130	6.0	
110-82-7	Cyclohexane	250	U	250	6.0	
124-48-1	Dibromochloromethane	130	U	130	5.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	130	U	130	15	
75-09-2	Dichloromethane	130	U	130	5.5	
100-41-4	Ethylbenzene	130	U	130	5.0	
98-82-8	Isopropylbenzene (Cumene)	130	U	130	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1340
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 21:56
Sample Name:	LC34-BW0003D-045.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6400.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	250	U	250	5.8	
1634-04-4	Methyl tert-Butyl Ether	130	U	130	5.0	
108-87-2	Methylcyclohexane	250	U	250	6.3	
100-42-5	Styrene	130	U	130	5.0	
127-18-4	Tetrachloroethene (PCE)	130	U	130	5.0	
108-88-3	Toluene	130	U	130	5.0	
79-01-6	Trichloroethene (TCE)	**28**	I	130	5.8	
75-69-4	Trichlorofluoromethane (CFC 11)	130	U	130	5.0	
75-01-4	Vinyl Chloride	**2900**		130	5.8	
156-59-2	cis-1,2-Dichloroethene	**3200**		130	5.0	
10061-01-5	cis-1,3-Dichloropropene	130	U	130	5.0	
179601-23-1	m,p-Xylenes	130	U	130	5.0	
123-86-4	n-Butyl Acetate	130	U	130	5.3	
95-47-6	o-Xylene	130	U	130	5.0	
156-60-5	trans-1,2-Dichloroethene	**51**	I	130	5.0	
10061-02-6	trans-1,3-Dichloropropene	130	U	130	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/20/12 21:56	
Dibromofluoromethane	104	89-119	2/20/12 21:56	
Toluene-d8	102	87-121	2/20/12 21:56	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1340
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/22/12 14:28
Sample Name:	LC34-BW0003D-045.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-022	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	280938
Data File Name:	star1455.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	25	U	25	
74-85-1	Ethene	**310**		25	
74-82-8	Methane	**1700**		50	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1340
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 06:46
Sample Name:	LC34-BW0003D-045.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-022	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007467.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**190**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**17**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**5.0**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1427
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003E-052.5-20120215		
Lab Code:	R1201031-023	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**3.2**		mg/L	1.0	10	NA	2/21/12 02:39	
Carbon, Total Organic (TOC), Average	9060A	**34.1**		mg/L	4.0	4	NA	2/25/12 10:32	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 18:42	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1427
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 17:50
Sample Name:	LC34-BW0003E-052.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6392.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**5.4**		5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**2.7**	I	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**4.0**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1427
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 17:50
Sample Name:	LC34-BW0003E-052.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6392.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.48**	I	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**61**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**40**		5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	**7.4**		5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**1.7**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/20/12 17:50	
Dibromofluoromethane	100	89-119	2/20/12 17:50	
Toluene-d8	99	87-121	2/20/12 17:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1427
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/23/12 12:51
Sample Name:	LC34-BW0003E-052.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-023	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1476.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**6.1**		5.0	
74-85-1	Ethene	**310**		5.0	
74-82-8	Methane	**390**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1427
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/22/12 02:16
Sample Name:	LC34-BW0003E-052.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-023	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007504.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**73**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**2.9**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1503
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003F-059.5-20120215		
Lab Code:	R1201031-024	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**2.7**		mg/L	1.0	10	NA	2/21/12 02:50	
Carbon, Total Organic (TOC), Average	9060A	**20.0**		mg/L	4.0	4	NA	2/25/12 11:12	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 18:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1503
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 16:17
Sample Name:	LC34-BW0003F-059.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6423.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.23**	I	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	**1.2**	I	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**13**		10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.40**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1503
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 16:17
Sample Name:	LC34-BW0003F-059.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6423.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**190**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**0.81**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**4.3**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/21/12 16:17	
Dibromofluoromethane	102	89-119	2/21/12 16:17	
Toluene-d8	99	87-121	2/21/12 16:17	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1503
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-BW0003F-059.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-024	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**7.8**		2.0	2	NA	2/23/12 13:08		281108	
Ethene	**450**		10	10	NA	2/23/12 13:19		281108	
Methane	**570**		20	10	NA	2/23/12 13:19		281108	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1503
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 08:53
Sample Name:	LC34-BW0003F-059.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-024	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007471.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**39**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12 1353
Date Received: 2/16/12

Sample Name: LC34-IW0002I-027.5-20120215
Lab Code: R1201031-025

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**228**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	2/16/12 14:50	
Carbon, Total Organic (TOC), Average	9060A	**4.0**		mg/L	1.0	1	NA	2/27/12 19:18	
Chloride	300.0	**52.1**		mg/L	2.0	10	NA	2/16/12 14:50	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 18:58	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 10:42	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/16/12 18:25	
Sulfate	300.0	**44.3**		mg/L	2.0	10	NA	2/17/12 10:42	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1353
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-IW0002I-027.5-20120215 Dissolved		
Lab Code:	R1201031-026	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 16:40	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 16:40	
Manganese, Dissolved	6010C	69		µg/L	10	1	2/20/12	2/22/12 16:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1353
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 16:48
Sample Name:	LC34-IW0002I-027.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6424.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	46	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	40	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	46	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**25000**		1000	62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1000	U	1000	58	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	52	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	
106-93-4	1,2-Dibromoethane	1000	U	1000	40	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	40	
107-06-2	1,2-Dichloroethane	1000	U	1000	40	
78-87-5	1,2-Dichloropropane	1000	U	1000	57	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	40	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	40	
71-36-3	n-Butanol	50000	U	50000	2100	
78-93-3	2-Butanone (MEK)	2000	U	2000	110	
591-78-6	2-Hexanone	2000	U	2000	70	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	54	
67-64-1	Acetone	**670**	I	2000	200	
71-43-2	Benzene	1000	U	1000	42	
75-27-4	Bromodichloromethane	1000	U	1000	40	
75-25-2	Bromoform	1000	U	1000	54	
74-83-9	Bromomethane	1000	U	1000	62	
75-15-0	Carbon Disulfide	**120**	I	2000	40	
56-23-5	Carbon Tetrachloride	1000	U	1000	54	
108-90-7	Chlorobenzene	1000	U	1000	40	
75-00-3	Chloroethane	1000	U	1000	62	
67-66-3	Chloroform	1000	U	1000	44	
74-87-3	Chloromethane	1000	U	1000	48	
110-82-7	Cyclohexane	2000	U	2000	48	
124-48-1	Dibromochloromethane	1000	U	1000	40	
75-71-8	Dichlorodifluoromethane (CFC 12)	**130**	I	1000	120	
75-09-2	Dichloromethane	1000	U	1000	44	
100-41-4	Ethylbenzene	1000	U	1000	40	
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1353
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 16:48
Sample Name:	LC34-IW0002I-027.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6424.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	2000	U	2000	46	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	40	
108-87-2	Methylcyclohexane	2000	U	2000	50	
100-42-5	Styrene	1000	U	1000	40	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	40	
108-88-3	Toluene	1000	U	1000	40	
79-01-6	Trichloroethene (TCE)	1000	U	1000	46	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	40	
75-01-4	Vinyl Chloride	**300**	I	1000	46	
156-59-2	cis-1,2-Dichloroethene	**3500**		1000	40	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	40	
179601-23-1	m,p-Xylenes	1000	U	1000	40	
123-86-4	n-Butyl Acetate	1000	U	1000	42	
95-47-6	o-Xylene	1000	U	1000	40	
156-60-5	trans-1,2-Dichloroethene	**140**	I	1000	40	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/21/12 16:48	
Dibromofluoromethane	100	89-119	2/21/12 16:48	
Toluene-d8	101	87-121	2/21/12 16:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1353
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/27/12 09:42
Sample Name:	LC34-IW0002I-027.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-025	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281444
Data File Name:	star040.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**3.8**		1.0	
74-85-1	Ethene	**9.2**		1.0	
74-82-8	Methane	**51**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1353
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 09:56
Sample Name:	LC34-IW0002I-027.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-025	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007473.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**3.6**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1210
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-IW0070D-040.5-20120215		
Lab Code:	R1201031-027	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**4.1**		mg/L	1.0	1	NA	2/25/12 14:36	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1210
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 18:22
Sample Name:	LC34-IW0070D-040.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6393.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1210
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 18:22
Sample Name:	LC34-IW0070D-040.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-027	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6393.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/20/12 18:22	
Dibromofluoromethane	102	89-119	2/20/12 18:22	
Toluene-d8	99	87-121	2/20/12 18:22	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1138
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-IW0070D1-070.0-20120215		
Lab Code:	R1201031-028	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.1**		mg/L	1.0	1	NA	2/25/12 15:17	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1138
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 18:52
Sample Name:	LC34-IW0070D1-070.0-20120215	**Units:**	µg/L
Lab Code:	R1201031-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6394.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1138
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 18:52
Sample Name:	LC34-IW0070D1-070.0-20120215	**Units:**	µg/L
Lab Code:	R1201031-028	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6394.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/20/12 18:52	
Dibromofluoromethane	97	89-119	2/20/12 18:52	
Toluene-d8	98	87-121	2/20/12 18:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1058
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-IW0071D-040.5-20120215		
Lab Code:	R1201031-029	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.4**		mg/L	1.0	1	NA	2/25/12 15:58	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1058
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 19:23
Sample Name:	LC34-IW0071D-040.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-029	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6395.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1058
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 19:23
Sample Name:	LC34-IW0071D-040.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-029	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6395.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	2/20/12 19:23	
Dibromofluoromethane	102	89-119	2/20/12 19:23	
Toluene-d8	100	87-121	2/20/12 19:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1453
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-IW0076-075.0-20120215		
Lab Code:	R1201031-030	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**1.9**		mg/L	1.0	10	NA	2/21/12 03:02	
Carbon, Total Organic (TOC), Average	9060A	**7.3**		mg/L	1.0	1	NA	2/25/12 16:38	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 20:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1453
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-IW0076-075.0-20120215 Dissolved		
Lab Code:	R1201031-031	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 16:45	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 16:45	
Manganese, Dissolved	6010C	**14**		µg/L	10	1	2/20/12	2/22/12 16:45	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1453
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 19:54
Sample Name:	LC34-IW0076-075.0-20120215	**Units:**	µg/L
Lab Code:	R1201031-030	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6396.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**150**		5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**0.94**	I	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1453
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 19:54
Sample Name:	LC34-IW0076-075.0-20120215	**Units:**	µg/L
Lab Code:	R1201031-030	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6396.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.75**	I	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**8.4**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**180**		5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**8.1**		5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/20/12 19:54	
Dibromofluoromethane	101	89-119	2/20/12 19:54	
Toluene-d8	102	87-121	2/20/12 19:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1453
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/27/12 09:52
Sample Name:	LC34-IW0076-075.0-20120215	**Units:**	µg/L
Lab Code:	R1201031-030	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281444
Data File Name:	star041.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	10	U	10	
74-85-1	Ethene	10	U	10	
74-82-8	Methane	**780**		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12 1453
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 10:59
Sample Name:	LC34-IW0076-075.0-20120215	**Units:**	mg/L
Lab Code:	R1201031-030	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007475.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**2.8**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**3.3**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-FD-20120215-01	**Units:**	µg/L
Lab Code:	R1201031-032	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**96**		1.0	1	NA	2/27/12 10:01		281444	
Ethene	**150**		5.0	5	NA	2/27/12 10:12		281444	
Methane	**410**		10	5	NA	2/27/12 10:12		281444	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
Sample Name:	LC34-FD-20120215-02		
Lab Code:	R1201031-033	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**310**		mg/L	2.0	1	NA	2/24/12 16:18	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/21/12 12:34
Sample Name:	LC34-FD-20120215-03	**Units:**	mg/L
Lab Code:	R1201031-034	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007478.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**3.7**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 15:48
Sample Name:	LC34-TB-20120215-01	**Units:**	µg/L
Lab Code:	R1201031-035	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6388.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 15:48
Sample Name:	LC34-TB-20120215-01	**Units:**	µg/L
Lab Code:	R1201031-035	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6388.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/20/12 15:48	
Dibromofluoromethane	100	89-119	2/20/12 15:48	
Toluene-d8	102	87-121	2/20/12 15:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 16:19
Sample Name:	LC34-TB-20120215-02	**Units:**	µg/L
Lab Code:	R1201031-036	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6389.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 16:19
Sample Name:	LC34-TB-20120215-02	**Units:**	µg/L
Lab Code:	R1201031-036	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6389.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/20/12 16:19	
Dibromofluoromethane	98	89-119	2/20/12 16:19	
Toluene-d8	99	87-121	2/20/12 16:19	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 16:49
Sample Name:	LC34-TB-20120215-03	**Units:**	µg/L
Lab Code:	R1201031-037	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6390.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12 16:49
Sample Name:	LC34-TB-20120215-03	**Units:**	µg/L
Lab Code:	R1201031-037	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6390.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	2/20/12 16:49	
Dibromofluoromethane	99	89-119	2/20/12 16:49	
Toluene-d8	98	87-121	2/20/12 16:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0839
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001A-024.5-20120216		
Lab Code:	R1201031-038	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**241**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 16:51	
Carbon, Total Organic (TOC), Average	9060A	**2.8**		mg/L	1.0	1	NA	2/25/12 17:19	
Chloride	300.0	**65.8**		mg/L	2.0	10	NA	2/17/12 16:51	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 19:29	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 16:51	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:21	
Sulfate	300.0	**56.0**		mg/L	2.0	10	NA	2/17/12 16:51	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0839
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001A-024.5-20120216 Dissolved		
Lab Code:	R1201031-039	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 16:52	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 16:52	
Manganese, Dissolved	6010C	**18**		µg/L	10	1	2/20/12	2/22/12 16:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0839
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 17:18
Sample Name:	LC34-BW0001A-024.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-038	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6425.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	120	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	100	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	120	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**93000**		2500	160	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	130	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	
106-93-4	1,2-Dibromoethane	2500	U	2500	100	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	100	
107-06-2	1,2-Dichloroethane	2500	U	2500	100	
78-87-5	1,2-Dichloropropane	2500	U	2500	140	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	100	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	100	
71-36-3	n-Butanol	130000	U	130000	5300	
78-93-3	2-Butanone (MEK)	5000	U	5000	260	
591-78-6	2-Hexanone	5000	U	5000	180	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	140	
67-64-1	Acetone	**2700**	I	5000	490	
71-43-2	Benzene	2500	U	2500	110	
75-27-4	Bromodichloromethane	2500	U	2500	100	
75-25-2	Bromoform	2500	U	2500	140	
74-83-9	Bromomethane	2500	U	2500	160	
75-15-0	Carbon Disulfide	**140**	I	5000	100	
56-23-5	Carbon Tetrachloride	2500	U	2500	140	
108-90-7	Chlorobenzene	2500	U	2500	100	
75-00-3	Chloroethane	2500	U	2500	160	
67-66-3	Chloroform	2500	U	2500	110	
74-87-3	Chloromethane	2500	U	2500	120	
110-82-7	Cyclohexane	5000	U	5000	120	
124-48-1	Dibromochloromethane	2500	U	2500	100	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	
75-09-2	Dichloromethane	2500	U	2500	110	
100-41-4	Ethylbenzene	2500	U	2500	100	
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	100	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0839
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 17:18
Sample Name:	LC34-BW0001A-024.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-038	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6425.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	5000	U	5000	120	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	100	
108-87-2	Methylcyclohexane	5000	U	5000	130	
100-42-5	Styrene	2500	U	2500	100	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	100	
108-88-3	Toluene	2500	U	2500	100	
79-01-6	Trichloroethene (TCE)	2500	U	2500	120	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	100	
75-01-4	Vinyl Chloride	**840**	I	2500	120	
156-59-2	cis-1,2-Dichloroethene	**11000**		2500	100	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	100	
179601-23-1	m,p-Xylenes	2500	U	2500	100	
123-86-4	n-Butyl Acetate	2500	U	2500	110	
95-47-6	o-Xylene	2500	U	2500	100	
156-60-5	trans-1,2-Dichloroethene	**290**	I	2500	100	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	100	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/21/12 17:18	
Dibromofluoromethane	102	89-119	2/21/12 17:18	
Toluene-d8	100	87-121	2/21/12 17:18	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0839
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/27/12 10:22
Sample Name:	LC34-BW0001A-024.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-038	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281444
Data File Name:	star044.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**3.0**		1.0	
74-85-1	Ethene	**26**		1.0	
74-82-8	Methane	**64**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0839
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 13:37
Sample Name:	LC34-BW0001A-024.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-038	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007480.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**1.6**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0924
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001B-031.5-20120216		
Lab Code:	R1201031-040	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**328**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	**3.2**		mg/L	2.0	20	NA	2/20/12 22:26	
Carbon, Total Organic (TOC), Average	9060A	**32.0**		mg/L	4.0	4	NA	2/27/12 19:59	
Chloride	300.0	**95.8**		mg/L	4.0	20	NA	2/20/12 22:26	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 19:37	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 17:39	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:23	
Sulfate	300.0	**31.5**		mg/L	2.0	10	NA	2/17/12 17:39	
Sulfide, Total	SM 4500-S2- F	**3.4**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0924
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001B-031.5-20120216 Dissovled		
Lab Code:	R1201031-041	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 17:08	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 17:08	
Manganese, Dissolved	6010C	17		µg/L	10	1	2/20/12	2/22/12 17:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0924
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 17:49
Sample Name:	LC34-BW0001B-031.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-040	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6426.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**150000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	250000	U	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	**4200**	I	10000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0924
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 17:49
Sample Name:	LC34-BW0001B-031.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-040	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6426.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**1400**	I	5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	**2200**	I	5000	230	
156-59-2	cis-1,2-Dichloroethene	**38000**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	5000	U	5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	**920**	I	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/21/12 17:49	
Dibromofluoromethane	101	89-119	2/21/12 17:49	
Toluene-d8	100	87-121	2/21/12 17:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0924
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/27/12 14:04
Sample Name:	LC34-BW0001B-031.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-040	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281444
Data File Name:	star057.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**16**		1.0	
74-85-1	Ethene	**30**		1.0	
74-82-8	Methane	**83**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 0924
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 14:40
Sample Name:	LC34-BW0001B-031.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-040	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007482.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**47**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**17**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1005
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001C-038.5-20120216		
Lab Code:	R1201031-042	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**760**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	**29.3**		mg/L	1.0	10	NA	2/17/12 17:55	
Carbon, Total Organic (TOC), Average	9060A	**504**		mg/L	40	40	NA	2/27/12 22:01	
Chloride	300.0	**247**		mg/L	10	50	NA	2/21/12 05:40	
Iodide	300.0	**40.7**		mg/L	2.0	10	NA	2/28/12 19:44	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 17:55	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:24	
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	2/17/12 17:55	
Sulfide, Total	SM 4500-S2- F	**5.8**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1005
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001C-038.5-20120216 Dissoved		
Lab Code:	R1201031-043	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 17:35	
Iron, Dissolved	6010C	**140**		µg/L	100	1	2/20/12	2/22/12 17:35	
Manganese, Dissolved	6010C	**57**		µg/L	10	1	2/20/12	2/22/12 17:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1005
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001C-038.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-042	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	2/22/12 15:20		281034	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	2/22/12 15:20		281034	
1,1,2-Trichloro-1,2,2-trifluoroethane	**45000**		2500	160	500	NA	2/21/12 18:20		280843	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	2/22/12 15:20		281034	
1,2,4-Trichlorobenzene	1300	U	1300	65	250	NA	2/22/12 15:20		281034	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	2/22/12 15:20		281034	
1,2-Dibromoethane	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
1,2-Dichloroethane	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
1,2-Dichloropropane	1300	U	1300	70	250	NA	2/22/12 15:20		281034	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
n-Butanol	63000	U	63000	2700	250	NA	2/22/12 15:20		281034	
2-Butanone (MEK)	2500	U	2500	130	250	NA	2/22/12 15:20		281034	
2-Hexanone	2500	U	2500	88	250	NA	2/22/12 15:20		281034	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	2/22/12 15:20		281034	
Acetone	2500	U	2500	250	250	NA	2/22/12 15:20		281034	
Benzene	1300	U	1300	53	250	NA	2/22/12 15:20		281034	
Bromodichloromethane	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Bromoform	1300	U	1300	68	250	NA	2/22/12 15:20		281034	
Bromomethane	1300	U	1300	78	250	NA	2/22/12 15:20		281034	
Carbon Disulfide	2500	U	2500	50	250	NA	2/22/12 15:20		281034	
Carbon Tetrachloride	1300	U	1300	68	250	NA	2/22/12 15:20		281034	
Chlorobenzene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Chloroethane	1300	U	1300	78	250	NA	2/22/12 15:20		281034	
Chloroform	1300	U	1300	55	250	NA	2/22/12 15:20		281034	
Chloromethane	1300	U	1300	60	250	NA	2/22/12 15:20		281034	
Cyclohexane	2500	U	2500	60	250	NA	2/22/12 15:20		281034	
Dibromochloromethane	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	2/22/12 15:20		281034	
Dichloromethane	1300	U	1300	55	250	NA	2/22/12 15:20		281034	
Ethylbenzene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Methyl Acetate	2500	U	2500	58	250	NA	2/22/12 15:20		281034	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1005
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001C-038.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-042	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Methylcyclohexane	2500	U	2500	63	250	NA	2/22/12 15:20		281034	
Styrene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Toluene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Trichloroethene (TCE)	**1400**		1300	58	250	NA	2/22/12 15:20		281034	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
Vinyl Chloride	**3700**		1300	58	250	NA	2/22/12 15:20		281034	
cis-1,2-Dichloroethene	**26000**		1300	50	250	NA	2/22/12 15:20		281034	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
m,p-Xylenes	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
n-Butyl Acetate	1300	U	1300	53	250	NA	2/22/12 15:20		281034	
o-Xylene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	
trans-1,2-Dichloroethene	**390**	I	1300	50	250	NA	2/22/12 15:20		281034	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	2/22/12 15:20		281034	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	2/22/12 15:20	
Dibromofluoromethane	104	89-119	2/22/12 15:20	
Toluene-d8	102	87-121	2/22/12 15:20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1005
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001C-038.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-042	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**59**		1.0	1	NA	2/27/12 14:14		281444	
Ethene	**53**		1.0	1	NA	2/27/12 14:14		281444	
Methane	**600**		20	10	NA	2/27/12 14:26		281444	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1005
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12 03:19
Sample Name:	LC34-BW0001C-038.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-042	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007506.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	2.5	U	2.5	
64-19-7	Acetic Acid	**390**		5.0	
107-92-6	Butanoic Acid (Butyric Acid)	**440**		10	
50-21-5	Lactic Acid	5.0	U	5.0	
79-09-4	Propionic Acid	**13**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1211
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001D-045.5-20120216		
Lab Code:	R1201031-044	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**465**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	**8.9**		mg/L	1.0	10	NA	2/17/12 18:10	
Carbon, Total Organic (TOC), Average	9060A	**176**		mg/L	20	20	NA	2/27/12 22:42	
Chloride	300.0	**751**		mg/L	20	100	NA	2/21/12 14:20	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 19:52	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 18:10	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:25	
Sulfate	300.0	**16.3**		mg/L	2.0	10	NA	2/17/12 18:10	
Sulfide, Total	SM 4500-S2- F	**15.5**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1211
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001D-045.5-20120216 Dissolved		
Lab Code:	R1201031-045	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 17:40	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 17:40	
Manganese, Dissolved	6010C	**47**		µg/L	10	1	2/20/12	2/22/12 17:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1211
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12 15:50
Sample Name:	LC34-BW0001D-045.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-044	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281034
Data File Name:	J:\ACQUDATA\msvoa10\data\022212\D8459.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**69000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	**36000**	I	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	10000	U	10000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1211
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12 15:50
Sample Name:	LC34-BW0001D-045.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-044	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281034
Data File Name:	J:\ACQUDATA\msvoa10\data\022212\D8459.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**110000**		5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	5000	U	5000	230	
156-59-2	cis-1,2-Dichloroethene	**5100**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	5000	U	5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	5000	U	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	2/22/12 15:50	
Dibromofluoromethane	104	89-119	2/22/12 15:50	
Toluene-d8	103	87-121	2/22/12 15:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1211
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/28/12 10:01
Sample Name:	LC34-BW0001D-045.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-044	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281606
Data File Name:	star731.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**100**		2.0	
74-85-1	Ethene	**4.6**		2.0	
74-82-8	Methane	**27**		4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1211
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12 13:42
Sample Name:	LC34-BW0001D-045.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-044	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007509.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**200**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**140**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1136
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001E-052.5-20120216		
Lab Code:	R1201031-046	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**239**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	**2.9**		mg/L	1.0	10	NA	2/17/12 17:59	
Carbon, Total Organic (TOC), Average	9060A	**10.7**		mg/L	1.0	1	NA	3/1/12 14:04	
Chloride	300.0	**603**		mg/L	20	100	NA	2/20/12 14:55	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 20:08	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 17:59	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:25	
Sulfate	300.0	**25.4**		mg/L	2.0	10	NA	2/17/12 17:59	
Sulfide, Total	SM 4500-S2- F	**8.9**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1136
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001E-052.5-20120216 Dissolved		
Lab Code:	R1201031-047	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 17:46	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 17:46	
Manganese, Dissolved	6010C	**13**		µg/L	10	1	2/20/12	2/22/12 17:46	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1136
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12 14:21
Sample Name:	LC34-BW0001E-052.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-046	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281034
Data File Name:	J:\ACQUDATA\msvoa10\data\022212\D8456.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1.4**	I	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**1.9**	I	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**1.6**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1136
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12 14:21
Sample Name:	LC34-BW0001E-052.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-046	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281034
Data File Name:	J:\ACQUDATA\msvoa10\data\022212\D8456.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.2**	I	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**27**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**2.5**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**1.0**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85-122	2/22/12 14:21	
Dibromofluoromethane	103	89-119	2/22/12 14:21	
Toluene-d8	103	87-121	2/22/12 14:21	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1136
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001E-052.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-046	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**3.7**		2.0	2	NA	2/28/12 10:15		281606	
Ethene	**110**		2.0	2	NA	2/28/12 10:15		281606	
Methane	**620**		20	10	NA	2/28/12 10:25		281606	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1136
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 19:25
Sample Name:	LC34-BW0001E-052.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-046	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007491.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**17**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1103
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001F-059.5-20120216		
Lab Code:	R1201031-048	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**250**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	**3.0**		mg/L	1.0	10	NA	2/17/12 18:10	
Carbon, Total Organic (TOC), Average	9060A	**16.8**		mg/L	1.0	1	NA	2/28/12 00:04	
Chloride	300.0	**619**		mg/L	20	100	NA	2/20/12 15:09	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 20:15	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 18:10	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:26	
Sulfate	300.0	**37.4**		mg/L	2.0	10	NA	2/17/12 18:10	
Sulfide, Total	SM 4500-S2- F	**6.7**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1103
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001F-059.5-20120216 Dissolved		
Lab Code:	R1201031-049	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 17:53	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 17:53	
Manganese, Dissolved	6010C	**12**		µg/L	10	1	2/20/12	2/22/12 17:53	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1103
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 19:52
Sample Name:	LC34-BW0001F-059.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-048	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6430.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**3.3**	I	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**1.4**	I	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.69**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1103
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 19:52
Sample Name:	LC34-BW0001F-059.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-048	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6430.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**5.1**		5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**81**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**53**		5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	2/21/12 19:52	
Dibromofluoromethane	101	89-119	2/21/12 19:52	
Toluene-d8	100	87-121	2/21/12 19:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1103
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-BW0001F-059.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-048	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**1.8**		1.0	1	NA	2/28/12 10:38		281606	
Ethene	**58**		1.0	1	NA	2/28/12 10:38		281606	
Methane	**270**		10	5	NA	2/28/12 10:48		281606	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1103
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 20:28
Sample Name:	LC34-BW0001F-059.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-048	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007493.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**32**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1419
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-IW0002D-037.5-20120216		
Lab Code:	R1201031-050	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**420**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	**10.8**		mg/L	1.0	10	NA	2/17/12 18:22	
Carbon, Total Organic (TOC), Average	9060A	**124**		mg/L	10	10	NA	3/1/12 14:45	
Chloride	300.0	**96.6**		mg/L	4.0	20	NA	2/20/12 15:23	
Iodide	300.0	**10.8**		mg/L	2.0	10	NA	2/28/12 20:23	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 18:22	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:27	
Sulfate	300.0	2.0	U	mg/L	2.0	10	NA	2/17/12 18:22	
Sulfide, Total	SM 4500-S2- F	**7.6**		mg/L	1.1	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1419
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-IW0002D-037.5-20120216 Dissolved		
Lab Code:	R1201031-051	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 17:59	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 17:59	
Manganese, Dissolved	6010C	57		µg/L	10	1	2/20/12	2/22/12 17:59	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1419
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/23/12 11:53
Sample Name:	LC34-IW0002D-037.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-050	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281208
Data File Name:	J:\ACQUDATA\msvoa12\Data\022312\U6495.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**450**		250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	500	U	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	500	U	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1419
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/23/12 11:53
Sample Name:	LC34-IW0002D-037.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-050	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281208
Data File Name:	J:\ACQUDATA\msvoa12\Data\022312\U6495.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**26**	I	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**9400**		250	12	
156-59-2	cis-1,2-Dichloroethene	**4700**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	250	U	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**300**		250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	2/23/12 11:53	
Dibromofluoromethane	101	89-119	2/23/12 11:53	
Toluene-d8	98	87-121	2/23/12 11:53	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1419
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-IW0002D-037.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-050	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**13**		4.0	4	NA	2/28/12 11:01		281606	
Ethene	**44**		4.0	4	NA	2/28/12 11:01		281606	
Methane	**660**		20	10	NA	2/28/12 11:25		281606	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1419
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12 14:45
Sample Name:	LC34-IW0002D-037.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-050	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007511.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	1.0	U	1.0	
64-19-7	Acetic Acid	**230**		2.0	
107-92-6	Butanoic Acid (Butyric Acid)	**38**		4.0	
50-21-5	Lactic Acid	2.0	U	2.0	
79-09-4	Propionic Acid	**7.7**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1333
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-IW0002D1-052.5-20120216		
Lab Code:	R1201031-052	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	**301**		mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	**4.7**		mg/L	1.0	10	NA	2/17/12 18:33	
Carbon, Total Organic (TOC), Average	9060A	**57.6**		mg/L	4.0	4	NA	2/28/12 02:47	
Chloride	300.0	**572**		mg/L	20	100	NA	2/20/12 16:19	
Iodide	300.0	**2.2**		mg/L	2.0	10	NA	2/28/12 20:31	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	10	NA	2/17/12 18:33	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:29	
Sulfate	300.0	**5.1**		mg/L	2.0	10	NA	2/17/12 18:33	
Sulfide, Total	SM 4500-S2- F	**14.4**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1333
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-IW0002D1-052.5-20120216 Dissolved		
Lab Code:	R1201031-053	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 18:15	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 18:15	
Manganese, Dissolved	6010C	**14**		µg/L	10	1	2/20/12	2/22/12 18:15	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1333
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-IW0002D1-052.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-052	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	2/21/12 20:23		280843	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	2/21/12 20:23		280843	
1,1,2-Trichloro-1,2,2-trifluoroethane	**47**		5.0	0.31	1	NA	2/21/12 20:23		280843	
1,1-Dichloroethane (1,1-DCA)	**0.69**	I	5.0	0.20	1	NA	2/21/12 20:23		280843	
1,1-Dichloroethene (1,1-DCE)	**0.99**	I	5.0	0.29	1	NA	2/21/12 20:23		280843	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	2/21/12 20:23		280843	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	2/21/12 20:23		280843	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	2/21/12 20:23		280843	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
n-Butanol	250	U	250	11	1	NA	2/21/12 20:23		280843	
2-Butanone (MEK)	10	U	10	0.51	1	NA	2/21/12 20:23		280843	
2-Hexanone	10	U	10	0.35	1	NA	2/21/12 20:23		280843	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	2/21/12 20:23		280843	
Acetone	10	U	10	0.98	1	NA	2/21/12 20:23		280843	
Benzene	5.0	U	5.0	0.21	1	NA	2/21/12 20:23		280843	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Bromoform	5.0	U	5.0	0.27	1	NA	2/21/12 20:23		280843	
Bromomethane	5.0	U	5.0	0.31	1	NA	2/21/12 20:23		280843	
Carbon Disulfide	**0.68**	I	10	0.20	1	NA	2/21/12 20:23		280843	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	2/21/12 20:23		280843	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Chloroethane	5.0	U	5.0	0.31	1	NA	2/21/12 20:23		280843	
Chloroform	5.0	U	5.0	0.22	1	NA	2/21/12 20:23		280843	
Chloromethane	5.0	U	5.0	0.24	1	NA	2/21/12 20:23		280843	
Cyclohexane	10	U	10	0.24	1	NA	2/21/12 20:23		280843	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Dichlorodifluoromethane (CFC 12)	**18**		5.0	0.56	1	NA	2/21/12 20:23		280843	
Dichloromethane	5.0	U	5.0	0.22	1	NA	2/21/12 20:23		280843	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Methyl Acetate	10	U	10	0.23	1	NA	2/21/12 20:23		280843	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1333
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-IW0002D1-052.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-052	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Methylcyclohexane	10	U	10	0.25	1	NA	2/21/12 20:23		280843	
Styrene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Toluene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Trichloroethene (TCE)	**4.1**	I	5.0	0.23	1	NA	2/21/12 20:23		280843	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
Vinyl Chloride	**2000**		130	5.8	25	NA	2/22/12 16:50		281034	
cis-1,2-Dichloroethene	**250**		130	5.0	25	NA	2/22/12 16:50		281034	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	2/21/12 20:23		280843	
o-Xylene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	
trans-1,2-Dichloroethene	**35**		5.0	0.20	1	NA	2/21/12 20:23		280843	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	2/21/12 20:23		280843	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	2/21/12 20:23	
Dibromofluoromethane	102	89-119	2/21/12 20:23	
Toluene-d8	100	87-121	2/21/12 20:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1333
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/28/12 11:56
Sample Name:	LC34-IW0002D1-052.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-052	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281606
Data File Name:	star739.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**7.6**		5.0	
74-85-1	Ethene	**370**		5.0	
74-82-8	Methane	**240**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12 1333
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 22:34
Sample Name:	LC34-IW0002D1-052.5-20120216	**Units:**	mg/L
Lab Code:	R1201031-052	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007497.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	**110**		1.0	
107-92-6	Butanoic Acid (Butyric Acid)	**9.9**		2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	**1.5**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-FD-20120216-01		
Lab Code:	R1201031-054	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.0**		mg/L	1.0	1	NA	2/28/12 03:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-FD-20120216-02		
Lab Code:	R1201031-055	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Sulfide, Total	SM 4500-S2- F	**3.2**		mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
Sample Name:	LC34-FD-20120216-03		
Lab Code:	R1201031-056	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	**36.6**		mg/L	1.0	10	NA	2/21/12 03:13	
Iodide	300.0	2.0	U	mg/L	2.0	10	NA	2/28/12 20:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 22:06
Sample Name:	LC34-IDW-185539-20120216	**Units:**	µg/L
Lab Code:	R1201031-057	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280878
Data File Name:	J:\ACQUDATA\msvoa10\data\022112\D8441.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**37**	I	50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	**300**		100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 22:06
Sample Name:	LC34-IDW-185539-20120216	**Units:**	µg/L
Lab Code:	R1201031-057	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280878
Data File Name:	J:\ACQUDATA\msvoa10\data\022112\D8441.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**17**	I	50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**300**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1400**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**14**	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	2/21/12 22:06	
Dibromofluoromethane	105	89-119	2/21/12 22:06	
Toluene-d8	103	87-121	2/21/12 22:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 13:12
Sample Name:	LC34-TB-20120216-01	**Units:**	µg/L
Lab Code:	R1201031-058	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6417.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/21/12 13:12
Sample Name:	LC34-TB-20120216-01	**Units:**	µg/L
Lab Code:	R1201031-058	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6417.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	2/21/12 13:12	
Dibromofluoromethane	97	89-119	2/21/12 13:12	
Toluene-d8	99	87-121	2/21/12 13:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	2/16/12 13:53	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	2/15/12 17:36	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	2/22/12 21:06	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/15/12 17:36	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	2/28/12 16:04	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	2/15/12 17:36	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/15/12 20:05	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	2/15/12 17:36	
Sulfide, Total	SM 4500-S2- F	1.0	U	mg/L	1.0	1	NA	2/17/12 19:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity as CaCO3, Total	SM 2320 B	2.0	U	mg/L	2.0	1	NA	2/24/12 16:18	
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	2/16/12 10:34	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	2/24/12 20:15	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/16/12 10:34	
Iodide	300.0	0.20	U	mg/L	0.20	1	NA	2/28/12 19:13	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	2/16/12 10:34	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/16/12 18:21	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	2/16/12 10:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	2/17/12 10:01	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	2/25/12 12:34	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/17/12 10:01	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	2/17/12 10:01	
Nitrite as Nitrogen	353.2	0.010	U	mg/L	0.010	1	NA	2/17/12 12:19	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	2/17/12 10:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB4	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	2/17/12 14:55	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	2/27/12 17:57	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/17/12 14:55	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	2/17/12 09:56	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	2/17/12 09:56	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB5	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	2/20/12 18:41	
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	3/1/12 12:43	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/20/12 10:13	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	1	NA	2/17/12 14:55	
Sulfate	300.0	0.20	U	mg/L	0.20	1	NA	2/17/12 14:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB6	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Bromide	300.0	0.10	U	mg/L	0.10	1	NA	2/20/12 23:23	
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/20/12 18:41	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB7	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/21/12 00:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB8	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	0.20	U	mg/L	0.20	1	NA	2/21/12 09:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/16/12	2/20/12 19:38	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/16/12	2/20/12 19:38	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	2/16/12	2/20/12 19:38	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB2	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/16/12	2/20/12 19:44	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/16/12	2/20/12 19:44	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	2/16/12	2/20/12 19:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB3	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 16:23	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 16:23	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 16:23	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1201031-MB4	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Arsenic, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 16:28	
Iron, Dissolved	6010C	100	U	µg/L	100	1	2/20/12	2/22/12 16:28	
Manganese, Dissolved	6010C	10	U	µg/L	10	1	2/20/12	2/22/12 16:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/17/12 11:25
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201955-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8367.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/17/12 11:25
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201955-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280472
Data File Name:	J:\ACQUDATA\msvoa10\data\021712\D8367.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	2/17/12 11:25	
Dibromofluoromethane	102	89-119	2/17/12 11:25	
Toluene-d8	98	87-121	2/17/12 11:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/20/12 13:59
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201851-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8394.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/20/12 13:59
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201851-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280661
Data File Name:	J:\ACQUDATA\msvoa10\data\022012\D8394.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	2/20/12 13:59	
Dibromofluoromethane	106	89-119	2/20/12 13:59	
Toluene-d8	104	87-121	2/20/12 13:59	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/20/12 14:47
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201822-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6386.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/20/12 14:47
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201822-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280656
Data File Name:	J:\ACQUDATA\msvoa12\Data\022012\U6386.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/20/12 14:47	
Dibromofluoromethane	98	89-119	2/20/12 14:47	
Toluene-d8	99	87-121	2/20/12 14:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/21/12 12:40
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202134-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6416.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/21/12 12:40
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202134-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280843
Data File Name:	J:\ACQUDATA\msvoa12\Data\022112\U6416.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	2/21/12 12:40	
Dibromofluoromethane	99	89-119	2/21/12 12:40	
Toluene-d8	98	87-121	2/21/12 12:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/21/12 14:38
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201947-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280878
Data File Name:	J:\ACQUDATA\msvoa10\data\022112\D8426.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/21/12 14:38
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201947-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	280878
Data File Name:	J:\ACQUDATA\msvoa10\data\022112\D8426.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	2/21/12 14:38	
Dibromofluoromethane	105	89-119	2/21/12 14:38	
Toluene-d8	103	87-121	2/21/12 14:38	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/22/12 13:51
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201994-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281034
Data File Name:	J:\ACQUDATA\msvoa10\data\022212\D8455.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/22/12 13:51
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201994-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281034
Data File Name:	J:\ACQUDATA\msvoa10\data\022212\D8455.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	2/22/12 13:51	
Dibromofluoromethane	104	89-119	2/22/12 13:51	
Toluene-d8	101	87-121	2/22/12 13:51	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/23/12 11:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202074-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281208
Data File Name:	J:\ACQUDATA\msvoa12\Data\022312\U6494.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	**0.36**	I	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/23/12 11:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202074-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	281208
Data File Name:	J:\ACQUDATA\msvoa12\Data\022312\U6494.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	2/23/12 11:22	
Dibromofluoromethane	100	89-119	2/23/12 11:22	
Toluene-d8	98	87-121	2/23/12 11:22	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/22/12 09:42
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201868-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	280938
Data File Name:	star1435.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/23/12 09:19
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1201921-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281108
Data File Name:	star1458.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/27/12 09:07
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202015-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281444
Data File Name:	star016.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/28/12 09:41
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202058-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	281606
Data File Name:	star729.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/20/12 13:32
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1201891-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007435.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	2/21/12 16:15
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1201891-06	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method:	Organic Acids	**Analysis Lot:**	281004
Data File Name:	J:\ACQUDATA\HPLC05\DATA\022012\X0007485.D\	**Instrument Name:**	R-HPLC-05
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
127-17-3	Pyruvic Acid	0.50	U	0.50	
64-19-7	Acetic Acid	1.0	U	1.0	
107-92-6	Butanoic Acid (Butyric Acid)	2.0	U	2.0	
50-21-5	Lactic Acid	1.0	U	1.0	
79-09-4	Propionic Acid	1.0	U	1.0	

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Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/25/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	LC34-BW0002B-031.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-018	**Basis:**	NA

Analyte Name	Method	LOQ	Sample Result	LC34-BW0002B-031.5-20120215DUP Duplicate Sample R1201031-018DUP3 Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC), Average	9060A	1.0	11.4	11.4	11.4	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/25/12

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	LC34-BW0002B-031.5-20120215	**Units:**	mg/L
Lab Code:	R1201031-018	**Basis:**	NA

Analytical Method: 9060A

LC34-BW0002B-031.5-201202
15MS
Matrix Spike
R1201031-018MS5

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	11.4	20.8	10.0	95	62 - 135

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/21/12 - 2/28/12

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0003B-031.5-20120215
Lab Code: R1201031-020

Units: mg/L
Basis: NA

Analytical Method: 300.0

Analyte Name	Sample Result	LC34-BW0003B-031.5-20120215MS Matrix Spike R1201031-020MS6 Result	Spike Amount	% Rec	LC34-BW0003B-031.5-20120215DMS Duplicate Matrix Spike R1201031-020DMS6 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Bromide	ND	10.2	10.0	102	10.2	10.0	102	90 - 110	<1	20
Iodide	ND	10.2	10.0	102	10.1	10.0	101	90 - 110	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/16/12 - 2/17/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-BW0003C-038.5-20120215
Lab Code: R1201031-021

Units: mg/L
Basis: NA

Analyte Name	Method	LOQ	Sample Result	LC34-BW0003C-038.5-20120215DUP Duplicate Sample R1201031-021DUP4 Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	353.2	0.010	0.010 U	0.010 U	NC	NC	20
Sulfide, Total	SM 4500-S2- F	1.0	4.2	4.1	4.15	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/16/12

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0003C-038.5-20120215
Lab Code: R1201031-021

Units: mg/L
Basis: NA

Analytical Method: 353.2

LC34-BW0003C-038.5-201202
15MS
Matrix Spike
R1201031-021MS7

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Nitrite as Nitrogen	ND	0.232	0.250	93	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.
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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/16/12 - 2/17/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-IW0002I-027.5-20120215
Lab Code: R1201031-025

Units: mg/L
Basis: NA

Analyte Name	Method	LOQ	Sample Result	LC34-IW0002I-027.5 -20120215DUP Duplicate Sample R1201031-025DUP5 Result	Average	RPD	RPD Limit
Bromide	300.0	1.0	1.0 U	1.0 U	NC	NC	20
Chloride	300.0	2.0	52.1	52.9	52.5	2	20
Nitrate as Nitrogen	300.0	1.0	1.0 U	1.0 U	NC	NC	20
Sulfate	300.0	2.0	44.3	44.2	44.3	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/16/12 - 2/17/12

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-IW0002I-027.5-20120215
Lab Code: R1201031-025

Units: mg/L
Basis: NA

Analytical Method: 300.0

LC34-IW0002I-027.5-20120215
MS
Matrix Spike
R1201031-025MS8

Analyte Name	Sample Result	Spike Result	Spike Amount	% Rec		% Rec Limits
Bromide	ND	9.9	10.0	99		90 - 110
Chloride	52.1	69.8	20.0	88	*	90 - 110
Nitrate as Nitrogen	ND	10.3	10.0	103		90 - 110
Sulfate	44.3	65.7	20.0	107		90 - 110

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/17/12 - 2/24/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name: LC34-BW0001A-024.5-20120216
Lab Code: R1201031-038

Units: mg/L
Basis: NA

Analyte Name	Method	LOQ	Sample Result	LC34-BW0001A-024.5-20120216DUP Duplicate Sample R1201031-038DUP6 Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	353.2	0.010	0.010 U	0.010 U	NC	NC	20
Alkalinity as CaCO3, Total	SM 2320 B	2.0	241	240	241	<1	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/17/12 - 2/24/12

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0001A-024.5-20120216
Lab Code: R1201031-038

Units: mg/L
Basis: NA

LC34-BW0001A-024.5-2
0120216MS
Matrix Spike
R1201031-038MS10

Analyte Name	Method	Sample Result	Spike Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO3, Total	SM 2320 B	241	340	100	99	70 - 110
Nitrite as Nitrogen	353.2	ND	0.257	0.250	103	90 - 110

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Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/17/12

Matrix Spike Summary
General Chemistry Parameters

Sample Name: LC34-BW0001A-024.5-20120216
Lab Code: R1201031-038

Units: mg/L
Basis: NA

Analytical Method: 300.0

Analyte Name	Sample Result	LC34-BW0001A-024.5-201202 16MS Matrix Spike R1201031-038MS9 Result	Spike Amount	% Rec	LC34-BW0001A-024.5-201202 16DMS Duplicate Matrix Spike R1201031-038DMS9 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
Bromide	ND	9.9	10.0	99	9.9	10.0	99		90 - 110	<1	20
Chloride	65.8	84.3	20.0	93	83.5	20.0	89	*	90 - 110	<1	20
Nitrate as Nitrogen	ND	9.8	10.0	98	10.1	10.0	101		90 - 110	3	20
Sulfate	56.0	75.7	20.0	98	74.9	20.0	95		90 - 110	1	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12

Replicate Sample Summary
Inorganic Parameters

Sample Name:	LC34-BW0001B-031.5-20120216 Dissovled	**Units:**	µg/L
Lab Code:	R1201031-041	**Basis:**	NA

Analyte Name	Method	LOQ	Sample Result	LC34-BW0001B-031.5-20120216 DissovledDUP Duplicate Sample R1201031-041DUP2 Result	Average	RPD	RPD Limit
Arsenic, Dissolved	6010C	10	10 U	10 U	NC	NC	20
Iron, Dissolved	6010C	100	100 U	100 U	NC	NC	20
Manganese, Dissolved	6010C	10	17	17	16.9	<1	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/22/12

Matrix Spike Summary
Inorganic Parameters

Sample Name: LC34-BW0001B-031.5-20120216 Dissovled
Lab Code: R1201031-041

Units: µg/L
Basis: NA

Analytical Method: 6010C
Prep Method: EPA 3010A

LC34-BW0001B-031.5-201202
16 DissovledMS
Matrix Spike
R1201031-041MS2

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	ND	39	40	98	75 - 125
Iron, Dissolved	ND	1060	1000	106	75 - 125
Manganese, Dissolved	17	527	500	102	75 - 125

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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/20/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IW0071D-040.5-20120215
Lab Code: R1201031-029

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IW0071D-040.5-2012021 5MS Matrix Spike RQ1201822-05			LC34-IW0071D-040.5-2012021 5DMS Duplicate Matrix Spike RQ1201822-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	ND	58.4	50.0	117	59.3	50.0	119	76 - 142	2	30
1,1,2,2-Tetrachloroethane	ND	50.7	50.0	101	53.6	50.0	107	71 - 120	5	30
1,1,2-Trichloroethane	ND	50.8	50.0	102	51.6	50.0	103	80 - 119	2	30
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	51.1	50.0	102	50.3	50.0	101	65 - 154	2	30
1,1-Dichloroethane (1,1-DCA)	ND	60.3	50.0	121	60.7	50.0	121	79 - 134	<1	30
1,1-Dichloroethene (1,1-DCE)	ND	61.3	50.0	123	59.6	50.0	119	71 - 143	3	30
1,2,4-Trichlorobenzene	ND	49.3	50.0	99	52.8	50.0	106	75 - 118	7	30
1,2-Dibromo-3-chloropropane (DBC	ND	45.3	50.0	91	47.2	50.0	94	60 - 125	4	30
1,2-Dibromoethane	ND	50.1	50.0	100	52.4	50.0	105	78 - 119	5	30
1,2-Dichlorobenzene	ND	52.8	50.0	106	54.5	50.0	109	82 - 117	3	30
1,2-Dichloroethane	ND	52.1	50.0	104	55.7	50.0	111	73 - 133	7	30
1,2-Dichloropropane	ND	57.1	50.0	114	57.5	50.0	115	84 - 124	<1	30
1,3-Dichlorobenzene	ND	52.1	50.0	104	55.4	50.0	111	82 - 117	6	30
1,4-Dichlorobenzene	ND	53.6	50.0	107	55.1	50.0	110	81 - 116	3	30
n-Butanol	ND	2430	2510	97	2660	2510	106	50 - 150	9	30
2-Butanone (MEK)	ND	45.4	50.0	91	45.2	50.0	90	54 - 130	<1	30
2-Hexanone	ND	45.9	50.0	92	46.8	50.0	94	55 - 125	2	30
4-Methyl-2-pentanone	ND	44.7	50.0	89	47.8	50.0	96	59 - 131	7	30
Acetone	ND	39.6	50.0	79	38.8	50.0	78	37 - 152	2	30
Benzene	ND	55.4	50.0	111	57.8	50.0	116	81 - 124	4	30
Bromodichloromethane	ND	57.0	50.0	114	59.1	50.0	118	81 - 126	4	30
Bromoform	ND	52.4	50.0	105	53.4	50.0	107	61 - 126	2	30
Bromomethane	ND	36.8	50.0	74	42.7	50.0	85	45 - 154	15	30
Carbon Disulfide	ND	70.8	50.0	142	70.2	50.0	140	32 - 149	<1	30
Carbon Tetrachloride	ND	60.5	50.0	121	61.8	50.0	124	71 - 146	2	30

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/20/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IW0071D-040.5-20120215
Lab Code: R1201031-029

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IW0071D-040.5-2012021 5MS Matrix Spike RQ1201822-05			LC34-IW0071D-040.5-2012021 5DMS Duplicate Matrix Spike RQ1201822-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chlorobenzene	ND	54.1	50.0	108	55.6	50.0	111	80 - 125	3	30
Chloroethane	ND	62.4	50.0	125	59.6	50.0	119	68 - 148	5	30
Chloroform	ND	61.1	50.0	122	62.1	50.0	124	81 - 131	2	30
Chloromethane	ND	60.3	50.0	121	62.4	50.0	125	61 - 151	4	30
Cyclohexane	ND	53.6	50.0	107	52.3	50.0	105	59 - 144	2	30
Dibromochloromethane	ND	54.6	50.0	109	58.8	50.0	118	74 - 130	7	30
Dichlorodifluoromethane (CFC 12)	ND	51.5	50.0	103	51.6	50.0	103	44 - 175	<1	30
Dichloromethane	ND	56.8	50.0	114	56.9	50.0	114	78 - 125	<1	30
Ethylbenzene	ND	56.5	50.0	113	58.8	50.0	118	84 - 127	4	30
Isopropylbenzene (Cumene)	ND	55.2	50.0	110	57.4	50.0	115	82 - 140	4	30
Methyl Acetate	ND	50.4	50.0	101	48.9	50.0	98	38 - 156	3	30
Methyl tert-Butyl Ether	ND	51.3	50.0	103	52.1	50.0	104	75 - 126	1	30
Methylcyclohexane	ND	56.0	50.0	112	54.4	50.0	109	63 - 141	3	30
Styrene	ND	55.8	50.0	112	56.8	50.0	114	43 - 146	2	30
Tetrachloroethene (PCE)	ND	55.5	50.0	111	57.9	50.0	116	66 - 142	4	30
Toluene	ND	56.4	50.0	113	59.5	50.0	119	81 - 125	5	30
Trichloroethene (TCE)	ND	55.0	50.0	110	57.4	50.0	115	71 - 133	4	30
Trichlorofluoromethane (CFC 11)	ND	61.7	50.0	123	59.9	50.0	120	71 - 159	3	30
Vinyl Chloride	ND	61.1	50.0	122	61.3	50.0	123	72 - 154	<1	30
cis-1,2-Dichloroethene	ND	55.9	50.0	112	54.6	50.0	109	72 - 137	2	30
cis-1,3-Dichloropropene	ND	51.7	50.0	103	53.5	50.0	107	71 - 120	3	30
m,p-Xylenes	ND	111	100	111	116	100	116	80 - 129	4	30
n-Butyl Acetate	ND	46.3	50.0	93	46.2	50.0	92	18 - 159	<1	30
o-Xylene	ND	55.5	50.0	111	56.4	50.0	113	80 - 126	2	30
trans-1,2-Dichloroethene	ND	59.4	50.0	119	58.7	50.0	117	77 - 130	1	30

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/15/12
Sample Matrix:	Water	**Date Received:**	2/16/12
		Date Analyzed:	2/20/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name:	LC34-IW0071D-040.5-20120215	**Units:**	µg/L
Lab Code:	R1201031-029	**Basis:**	NA

Analytical Method: 8260C

		LC34-IW0071D-040.5-2012021 5MS Matrix Spike RQ1201822-05			LC34-IW0071D-040.5-2012021 5DMS Duplicate Matrix Spike RQ1201822-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
trans-1,3-Dichloropropene	ND	52.1	50.0	104	54.6	50.0	109	67 - 122	5	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/22/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IW0002D1-052.5-20120216
Lab Code: R1201031-052

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IW0002D1-052.5-201202 16MS Matrix Spike RQ1201994-05			LC34-IW0002D1-052.5-201202 16DMS Duplicate Matrix Spike RQ1201994-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	ND	1230	1250	99	1210	1250	97	76 - 142	1	30
1,1,2,2-Tetrachloroethane	ND	1160	1250	93	1160	1250	93	71 - 120	<1	30
1,1,2-Trichloroethane	ND	1170	1250	94	1180	1250	95	80 - 119	1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	47	1210	1250	93	1170	1250	90	65 - 154	3	30
1,1-Dichloroethane (1,1-DCA)	0.69	1260	1250	101	1250	1250	100	79 - 134	1	30
1,1-Dichloroethene (1,1-DCE)	0.99	1320	1250	106	1320	1250	105	71 - 143	<1	30
1,2,4-Trichlorobenzene	ND	1130	1250	91	1140	1250	91	75 - 118	<1	30
1,2-Dibromo-3-chloropropane (DBC	ND	1120	1250	89	1190	1250	95	60 - 125	6	30
1,2-Dibromoethane	ND	1240	1250	99	1270	1250	102	78 - 119	3	30
1,2-Dichlorobenzene	ND	1210	1250	97	1210	1250	97	82 - 117	<1	30
1,2-Dichloroethane	ND	1240	1250	99	1240	1250	99	73 - 133	<1	30
1,2-Dichloropropane	ND	1240	1250	100	1240	1250	99	84 - 124	<1	30
1,3-Dichlorobenzene	ND	1240	1250	99	1220	1250	98	82 - 117	1	30
1,4-Dichlorobenzene	ND	1230	1250	98	1220	1250	97	81 - 116	<1	30
n-Butanol	ND	51200	62700	82	57700	62700	92	50 - 150	12	30
2-Butanone (MEK)	ND	953	1250	76	939	1250	75	54 - 130	1	30
2-Hexanone	ND	1060	1250	85	1070	1250	85	55 - 125	<1	30
4-Methyl-2-pentanone	ND	1020	1250	82	988	1250	79	59 - 131	3	30
Acetone	ND	1020	1250	81	1020	1250	82	37 - 152	<1	30
Benzene	ND	1250	1250	100	1240	1250	99	81 - 124	<1	30
Bromodichloromethane	ND	1230	1250	98	1240	1250	99	81 - 126	<1	30
Bromoform	ND	1210	1250	97	1290	1250	103	61 - 126	6	30
Bromomethane	ND	695	1250	56	756	1250	60	45 - 154	8	30
Carbon Disulfide	0.68	1360	1250	109	1310	1250	104	32 - 149	4	30
Carbon Tetrachloride	ND	1320	1250	105	1300	1250	104	71 - 146	2	30

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/22/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IW0002D1-052.5-20120216
Lab Code: R1201031-052

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IW0002D1-052.5-201202 16MS Matrix Spike RQ1201994-05			LC34-IW0002D1-052.5-201202 16DMS Duplicate Matrix Spike RQ1201994-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chlorobenzene	ND	1290	1250	103	1300	1250	104	80 - 125	1	30
Chloroethane	ND	1300	1250	104	1270	1250	101	68 - 148	2	30
Chloroform	ND	1240	1250	99	1220	1250	98	81 - 131	2	30
Chloromethane	ND	1290	1250	103	1250	1250	100	61 - 151	3	30
Cyclohexane	ND	1080	1250	87	1010	1250	81	59 - 144	7	30
Dibromochloromethane	ND	1340	1250	107	1370	1250	110	74 - 130	3	30
Dichlorodifluoromethane (CFC 12)	18	1220	1250	96	1150	1250	91	44 - 175	5	30
Dichloromethane	ND	1250	1250	100	1230	1250	98	78 - 125	1	30
Ethylbenzene	ND	1330	1250	106	1310	1250	105	84 - 127	1	30
Isopropylbenzene (Cumene)	ND	1320	1250	106	1340	1250	107	82 - 140	2	30
Methyl Acetate	ND	1070	1250	85	1050	1250	84	38 - 156	2	30
Methyl tert-Butyl Ether	ND	1100	1250	88	1120	1250	89	75 - 126	2	30
Methylcyclohexane	ND	1180	1250	94	1100	1250	88	63 - 141	7	30
Styrene	ND	1270	1250	101	1240	1250	99	43 - 146	2	30
Tetrachloroethene (PCE)	ND	1340	1250	107	1350	1250	108	66 - 142	<1	30
Toluene	ND	1250	1250	100	1250	1250	100	81 - 125	<1	30
Trichloroethene (TCE)	4.1	1260	1250	100	1230	1250	98	71 - 133	2	30
Trichlorofluoromethane (CFC 11)	ND	1290	1250	103	1260	1250	101	71 - 159	2	30
Vinyl Chloride	2000	3150	1250	91	3280	1250	101	72 - 154	4	30
cis-1,2-Dichloroethene	250	1470	1250	98	1460	1250	97	72 - 137	1	30
cis-1,3-Dichloropropene	ND	1100	1250	88	1090	1250	87	71 - 120	<1	30
m,p-Xylenes	ND	2710	2500	108	2700	2500	108	80 - 129	<1	30
n-Butyl Acetate	ND	1080	1250	86	1070	1250	86	18 - 159	<1	30
o-Xylene	ND	1310	1250	105	1320	1250	106	80 - 126	<1	30
trans-1,2-Dichloroethene	35	1280	1250	100	1280	1250	100	77 - 130	<1	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client:	GeoSyntec Consultants	**Service Request:**	R1201031
Project:	ESTCP PED LC34 2/14-16/12/ TR0272A	**Date Collected:**	2/16/12
Sample Matrix:	Water	**Date Received:**	2/17/12
		Date Analyzed:	2/22/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name:	LC34-IW0002D1-052.5-20120216	**Units:**	µg/L
Lab Code:	R1201031-052	**Basis:**	NA

Analytical Method: 8260C

		LC34-IW0002D1-052.5-201202 16MS Matrix Spike RQ1201994-05			LC34-IW0002D1-052.5-201202 16DMS Duplicate Matrix Spike RQ1201994-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
trans-1,3-Dichloropropene	ND	1120	1250	89	1130	1250	90	67 - 122	<1	30

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/21/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IDW-185539-20120216
Lab Code: R1201031-057

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IDW-185539-20120216 MS Matrix Spike RQ1201947-05			LC34-IDW-185539-20120216D MS Duplicate Matrix Spike RQ1201947-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	ND	499	500	100	495	500	99	76 - 142	<1	30
1,1,2,2-Tetrachloroethane	ND	524	500	105	543	500	109	71 - 120	4	30
1,1,2-Trichloroethane	ND	495	500	99	527	500	105	80 - 119	6	30
1,1,2-Trichloro-1,2,2-trifluoroethane	37	489	500	90	507	500	94	65 - 154	4	30
1,1-Dichloroethane (1,1-DCA)	ND	508	500	102	515	500	103	79 - 134	1	30
1,1-Dichloroethene (1,1-DCE)	ND	525	500	105	530	500	106	71 - 143	<1	30
1,2,4-Trichlorobenzene	ND	457	500	91	477	500	95	75 - 118	4	30
1,2-Dibromo-3-chloropropane (DBC	ND	534	500	107	552	500	110	60 - 125	3	30
1,2-Dibromoethane	ND	530	500	106	562	500	112	78 - 119	6	30
1,2-Dichlorobenzene	ND	491	500	98	508	500	102	82 - 117	3	30
1,2-Dichloroethane	ND	517	500	103	545	500	109	73 - 133	5	30
1,2-Dichloropropane	ND	502	500	100	521	500	104	84 - 124	4	30
1,3-Dichlorobenzene	ND	490	500	98	499	500	100	82 - 117	2	30
1,4-Dichlorobenzene	ND	483	500	97	498	500	100	81 - 116	3	30
n-Butanol	ND	26200	25100	104	29700	25100	118	50 - 150	13	30
2-Butanone (MEK)	ND	531	500	106	554	500	111	54 - 130	4	30
2-Hexanone	ND	554	500	111	597	500	119	55 - 125	8	30
4-Methyl-2-pentanone	ND	532	500	106	561	500	112	59 - 131	5	30
Acetone	300	883	500	117	849	500	110	37 - 152	4	30
Benzene	ND	493	500	99	510	500	102	81 - 124	3	30
Bromodichloromethane	ND	514	500	103	531	500	106	81 - 126	3	30
Bromoform	ND	539	500	108	574	500	115	61 - 126	6	30
Bromomethane	ND	429	500	86	456	500	91	45 - 154	6	30
Carbon Disulfide	ND	528	500	106	542	500	108	32 - 149	3	30
Carbon Tetrachloride	ND	517	500	103	545	500	109	71 - 146	5	30

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/21/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IDW-185539-20120216
Lab Code: R1201031-057

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IDW-185539-20120216 MS Matrix Spike RQ1201947-05			LC34-IDW-185539-20120216D MS Duplicate Matrix Spike RQ1201947-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chlorobenzene	ND	510	500	102	526	500	105	80 - 125	3	30
Chloroethane	ND	489	500	98	494	500	99	68 - 148	1	30
Chloroform	ND	500	500	100	511	500	102	81 - 131	2	30
Chloromethane	ND	559	500	112	570	500	114	61 - 151	2	30
Cyclohexane	ND	502	500	100	535	500	107	59 - 144	6	30
Dibromochloromethane	ND	555	500	111	589	500	118	74 - 130	6	30
Dichlorodifluoromethane (CFC 12)	ND	470	500	94	500	500	100	44 - 175	6	30
Dichloromethane	ND	500	500	100	506	500	101	78 - 125	1	30
Ethylbenzene	ND	510	500	102	525	500	105	84 - 127	3	30
Isopropylbenzene (Cumene)	ND	519	500	104	532	500	106	82 - 140	2	30
Methyl Acetate	ND	557	500	111	578	500	116	38 - 156	4	30
Methyl tert-Butyl Ether	ND	487	500	97	506	500	101	75 - 126	4	30
Methylcyclohexane	ND	504	500	101	531	500	106	63 - 141	5	30
Styrene	ND	509	500	102	526	500	105	43 - 146	3	30
Tetrachloroethene (PCE)	ND	511	500	102	523	500	105	66 - 142	2	30
Toluene	ND	496	500	99	511	500	102	81 - 125	3	30
Trichloroethene (TCE)	17	511	500	99	533	500	103	71 - 133	4	30
Trichlorofluoromethane (CFC 11)	ND	495	500	99	514	500	103	71 - 159	4	30
Vinyl Chloride	300	825	500	105	838	500	107	72 - 154	2	30
cis-1,2-Dichloroethene	1400	1950	500	110	1970	500	115	72 - 137	1	30
cis-1,3-Dichloropropene	ND	462	500	92	480	500	96	71 - 120	4	30
m,p-Xylenes	ND	1050	1000	105	1090	1000	109	80 - 129	4	30
n-Butyl Acetate	ND	579	500	116	612	500	122	18 - 159	6	30
o-Xylene	ND	521	500	104	533	500	107	80 - 126	2	30
trans-1,2-Dichloroethene	14	509	500	99	520	500	101	77 - 130	2	30

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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/16/12
Date Received: 2/17/12
Date Analyzed: 2/21/12

Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: LC34-IDW-185539-20120216
Lab Code: R1201031-057

Units: µg/L
Basis: NA

Analytical Method: 8260C

		LC34-IDW-185539-20120216 MS Matrix Spike RQ1201947-05			LC34-IDW-185539-20120216D MS Duplicate Matrix Spike RQ1201947-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
trans-1,3-Dichloropropene	ND	468	500	94	497	500	99	67 - 122	6	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/23/12

Matrix Spike Summary
Dissolved Gases by GC/FID

Sample Name: LC34-BW0003D-045.5-20120215
Lab Code: R1201031-022

Units: µg/L
Basis: NA

Analytical Method: RSK 175

Analyte Name	Sample Result	LC34-BW0003D-045.5-20120215MS Matrix Spike RQ1201921-03 Result	Spike Amount	% Rec	LC34-BW0003D-045.5-20120215DMS Duplicate Matrix Spike RQ1201921-04 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	ND	1500	1300	115	1570	1300	120	57 - 133	4	30
Ethene	310	1600	1220	106	1640	1220	110	58 - 135	2	30
Methane	1700	2770	1310	84	2800	1310	86	47 - 146	1	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Collected: 2/15/12
Date Received: 2/16/12
Date Analyzed: 2/20/12 - 2/22/12

Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: LC34-BW0002A-024.5-20120215
Lab Code: R1201031-017

Units: mg/L
Basis: NA

Analytical Method: Organic Acids

Analyte Name	Sample Result	LC34-BW0002A-024.5-201202 15MS Matrix Spike RQ1201891-04 Result	Spike Amount	% Rec	LC34-BW0002A-024.5-201202 15DMS Duplicate Matrix Spike RQ1201891-05 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Pyruvic Acid	ND	0.770	1.00	77	0.830	1.00	83	25 - 152	7	30
Acetic Acid	100	98.6	10.3	-18 #	101	10.3	2 #	13 - 167	2	30
Butanoic Acid (Butyric Acid)	ND	8.83	10.1	87	11.0	10.1	109	49 - 145	22	30
Lactic Acid	ND	7.35	10.0	73	7.84	10.0	78	27 - 127	6	30
Propionic Acid	ND	8.59	10.1	85	9.36	10.1	93	68 - 133	9	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/17/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS1 Result	Spike Amount	% Rec	Duplicate Lab Control Sample R1201031-DLCS1 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfide, Total	SM 4500-S2- F	8.85	8.4	106	8.66	8.4	104	56 - 138	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/15/12 - 2/28/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.976	1.00	98	90 - 110
Chloride	300.0	1.98	2.00	99	90 - 110
Iodide	300.0	1.00	1.00	100	90 - 110
Nitrate as Nitrogen	300.0	0.971	1.00	97	90 - 110
Nitrite as Nitrogen	353.2	0.247	0.250	99	90 - 110
Sulfate	300.0	1.89	2.00	95	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	21.0	20.0	105	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.83	10.0	98	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/16/12 - 2/28/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.01	1.00	101	90 - 110
Chloride	300.0	2.06	2.00	103	90 - 110
Iodide	300.0	1.04	1.00	104	90 - 110
Nitrate as Nitrogen	300.0	1.03	1.00	103	90 - 110
Nitrite as Nitrogen	353.2	0.234	0.250	94	90 - 110
Sulfate	300.0	2.01	2.00	101	90 - 110
Alkalinity as CaCO3, Total	SM 2320 B	19.0	20.0	95	72 - 115
Carbon, Total Organic (TOC), Average	9060A	9.77	10.0	98	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/17/12 - 2/25/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	0.954	1.00	95	90 - 110
Chloride	300.0	1.96	2.00	98	90 - 110
Nitrate as Nitrogen	300.0	0.967	1.00	97	90 - 110
Nitrite as Nitrogen	353.2	0.251	0.250	101	90 - 110
Sulfate	300.0	1.91	2.00	96	90 - 110
Carbon, Total Organic (TOC), Average	9060A	9.86	10.0	99	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/17/12 - 2/27/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS5 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.02	1.00	102	90 - 110
Chloride	300.0	2.05	2.00	103	90 - 110
Nitrate as Nitrogen	300.0	1.03	1.00	103	90 - 110
Sulfate	300.0	2.01	2.00	101	90 - 110
Carbon, Total Organic (TOC), Average	9060A	9.79	10.0	98	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/17/12 - 3/ 1/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS6 Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.02	1.00	102	90 - 110
Chloride	300.0	1.95	2.00	98	90 - 110
Nitrate as Nitrogen	300.0	1.03	1.00	103	90 - 110
Sulfate	300.0	2.02	2.00	101	90 - 110
Carbon, Total Organic (TOC), Average	9060A	10.1	10.0	101	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/20/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Lab Control Sample
R1201031-LCS7

Analyte Name	Method	Result	Spike Amount	% Rec	% Rec Limits
Bromide	300.0	1.01	1.00	101	90 - 110
Chloride	300.0	2.06	2.00	103	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/21/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS8 Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	1.98	2.00	99	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/21/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Lab Control Sample
R1201031-LCS9

Analyte Name	Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	2.05	2.00	102	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/20/12

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

		Lab Control Sample R1201031-LCS1			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Arsenic, Dissolved	6010C	39.7	40	99	80 - 120
Iron, Dissolved	6010C	948	1000	95	80 - 120
Manganese, Dissolved	6010C	464	500	93	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/22/12

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1201031-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Dissolved	6010C	36.2	40	91	80 - 120
Iron, Dissolved	6010C	1020	1000	102	80 - 120
Manganese, Dissolved	6010C	504	500	101	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280472

Lab Control Sample
RQ1201955-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.6	20.0	83	72 - 128
1,1,2,2-Tetrachloroethane	19.2	20.0	96	72 - 131
1,1,2-Trichloroethane	18.2	20.0	91	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.6	20.0	78	68 - 136
1,1-Dichloroethane (1,1-DCA)	17.9	20.0	90	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.9	20.0	90	72 - 129
1,2,4-Trichlorobenzene	18.7	20.0	94	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.2	20.0	96	62 - 131
1,2-Dibromoethane	20.4	20.0	102	78 - 125
1,2-Dichlorobenzene	18.9	20.0	94	79 - 124
1,2-Dichloroethane	18.9	20.0	95	73 - 127
1,2-Dichloropropane	17.9	20.0	90	80 - 123
1,3-Dichlorobenzene	18.6	20.0	93	78 - 124
1,4-Dichlorobenzene	18.8	20.0	94	78 - 123
n-Butanol	900	1000	90	70 - 130
2-Butanone (MEK)	17.7	20.0	89	60 - 133
2-Hexanone	18.9	20.0	94	61 - 131
4-Methyl-2-pentanone	18.0	20.0	90	61 - 132
Acetone	18.2	20.0	91	54 - 139
Benzene	17.2	20.0	86	78 - 121
Bromodichloromethane	18.1	20.0	91	80 - 125
Bromoform	18.6	20.0	93	68 - 130
Bromomethane	17.2	20.0	86	57 - 144
Carbon Disulfide	17.6	20.0	88	52 - 140
Carbon Tetrachloride	16.7	20.0	84	68 - 133
Chlorobenzene	18.2	20.0	91	80 - 121
Chloroethane	16.9	20.0	85	71 - 130
Chloroform	17.6	20.0	88	78 - 125
Chloromethane	19.6	20.0	98	61 - 138
Cyclohexane	16.9	20.0	84	57 - 126
Dibromochloromethane	20.2	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	16.7	20.0	84	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280472

Lab Control Sample
RQ1201955-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.1	20.0	90	75 - 125
Ethylbenzene	17.7	20.0	89	78 - 123
Isopropylbenzene (Cumene)	17.8	20.0	89	73 - 133
Methyl Acetate	19.3	20.0	97	57 - 157
Methyl tert-Butyl Ether	17.7	20.0	88	75 - 126
Methylcyclohexane	17.4	20.0	87	61 - 125
Styrene	18.1	20.0	91	80 - 132
Tetrachloroethene (PCE)	17.9	20.0	89	72 - 131
Toluene	17.0	20.0	85	78 - 122
Trichloroethene (TCE)	16.6	20.0	83	74 - 127
Trichlorofluoromethane (CFC 11)	17.4	20.0	87	69 - 141
Vinyl Chloride	16.9	20.0	84	72 - 138
cis-1,2-Dichloroethene	17.8	20.0	89	78 - 122
cis-1,3-Dichloropropene	16.9	20.0	85	77 - 125
m,p-Xylenes	36.4	40.0	91	79 - 126
n-Butyl Acetate	19.9	20.0	99	31 - 144
o-Xylene	18.2	20.0	91	77 - 118
trans-1,2-Dichloroethene	17.1	20.0	86	75 - 121
trans-1,3-Dichloropropene	17.5	20.0	87	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280661

Lab Control Sample
RQ1201851-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.3	20.0	96	72 - 128
1,1,2,2-Tetrachloroethane	19.9	20.0	100	72 - 131
1,1,2-Trichloroethane	18.5	20.0	93	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.2	20.0	86	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.4	20.0	97	76 - 124
1,1-Dichloroethene (1,1-DCE)	19.8	20.0	99	72 - 129
1,2,4-Trichlorobenzene	18.4	20.0	92	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.3	20.0	91	62 - 131
1,2-Dibromoethane	19.7	20.0	99	78 - 125
1,2-Dichlorobenzene	19.8	20.0	99	79 - 124
1,2-Dichloroethane	19.9	20.0	99	73 - 127
1,2-Dichloropropane	19.4	20.0	97	80 - 123
1,3-Dichlorobenzene	19.7	20.0	99	78 - 124
1,4-Dichlorobenzene	19.6	20.0	98	78 - 123
n-Butanol	851	1000	85	70 - 130
2-Butanone (MEK)	17.0	20.0	85	60 - 133
2-Hexanone	18.4	20.0	92	61 - 131
4-Methyl-2-pentanone	17.4	20.0	87	61 - 132
Acetone	15.2	20.0	76	54 - 139
Benzene	19.2	20.0	96	78 - 121
Bromodichloromethane	19.7	20.0	98	80 - 125
Bromoform	19.4	20.0	97	68 - 130
Bromomethane	17.8	20.0	89	57 - 144
Carbon Disulfide	18.4	20.0	92	52 - 140
Carbon Tetrachloride	20.3	20.0	102	68 - 133
Chlorobenzene	20.3	20.0	101	80 - 121
Chloroethane	18.8	20.0	94	71 - 130
Chloroform	19.4	20.0	97	78 - 125
Chloromethane	21.8	20.0	109	61 - 138
Cyclohexane	16.3	20.0	81	57 - 126
Dibromochloromethane	21.0	20.0	105	78 - 133
Dichlorodifluoromethane (CFC 12)	20.2	20.0	101	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280661

Analyte Name	Lab Control Sample RQ1201851-02 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.1	20.0	95	75 - 125
Ethylbenzene	20.1	20.0	100	78 - 123
Isopropylbenzene (Cumene)	20.1	20.0	100	73 - 133
Methyl Acetate	18.2	20.0	91	57 - 157
Methyl tert-Butyl Ether	17.7	20.0	89	75 - 126
Methylcyclohexane	16.3	20.0	82	61 - 125
Styrene	19.1	20.0	96	80 - 132
Tetrachloroethene (PCE)	19.7	20.0	99	72 - 131
Toluene	19.3	20.0	96	78 - 122
Trichloroethene (TCE)	18.7	20.0	94	74 - 127
Trichlorofluoromethane (CFC 11)	19.4	20.0	97	69 - 141
Vinyl Chloride	20.0	20.0	100	72 - 138
cis-1,2-Dichloroethene	18.7	20.0	94	78 - 122
cis-1,3-Dichloropropene	18.3	20.0	92	77 - 125
m,p-Xylenes	41.2	40.0	103	79 - 126
n-Butyl Acetate	18.8	20.0	94	31 - 144
o-Xylene	20.2	20.0	101	77 - 118
trans-1,2-Dichloroethene	19.2	20.0	96	75 - 121
trans-1,3-Dichloropropene	18.7	20.0	94	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280656

Lab Control Sample
RQ1201822-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.7	20.0	98	72 - 128
1,1,2,2-Tetrachloroethane	20.1	20.0	100	72 - 131
1,1,2-Trichloroethane	20.4	20.0	102	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.1	20.0	81	68 - 136
1,1-Dichloroethane (1,1-DCA)	21.4	20.0	107	76 - 124
1,1-Dichloroethene (1,1-DCE)	19.1	20.0	95	72 - 129
1,2,4-Trichlorobenzene	19.7	20.0	99	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.8	20.0	94	62 - 131
1,2-Dibromoethane	20.1	20.0	100	78 - 125
1,2-Dichlorobenzene	20.4	20.0	102	79 - 124
1,2-Dichloroethane	21.3	20.0	106	73 - 127
1,2-Dichloropropane	20.9	20.0	105	80 - 123
1,3-Dichlorobenzene	20.1	20.0	101	78 - 124
1,4-Dichlorobenzene	20.4	20.0	102	78 - 123
n-Butanol	1080	1000	107	70 - 130
2-Butanone (MEK)	15.0	20.0	75	60 - 133
2-Hexanone	15.1	20.0	76	61 - 131
4-Methyl-2-pentanone	15.5	20.0	78	61 - 132
Acetone	13.4	20.0	67	54 - 139
Benzene	19.8	20.0	99	78 - 121
Bromodichloromethane	21.8	20.0	109	80 - 125
Bromoform	20.9	20.0	104	68 - 130
Bromomethane	18.4	20.0	92	57 - 144
Carbon Disulfide	20.0	20.0	100	52 - 140
Carbon Tetrachloride	20.6	20.0	103	68 - 133
Chlorobenzene	20.6	20.0	103	80 - 121
Chloroethane	19.8	20.0	99	71 - 130
Chloroform	21.9	20.0	110	78 - 125
Chloromethane	21.7	20.0	109	61 - 138
Cyclohexane	19.2	20.0	96	57 - 126
Dibromochloromethane	21.8	20.0	109	78 - 133
Dichlorodifluoromethane (CFC 12)	16.9	20.0	84	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280656

Lab Control Sample
RQ1201822-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.1	20.0	105	75 - 125
Ethylbenzene	20.4	20.0	102	78 - 123
Isopropylbenzene (Cumene)	19.7	20.0	99	73 - 133
Methyl Acetate	19.5	20.0	98	57 - 157
Methyl tert-Butyl Ether	20.5	20.0	103	75 - 126
Methylcyclohexane	22.0	20.0	110	61 - 125
Styrene	21.0	20.0	105	80 - 132
Tetrachloroethene (PCE)	19.3	20.0	96	72 - 131
Toluene	20.3	20.0	101	78 - 122
Trichloroethene (TCE)	18.4	20.0	92	74 - 127
Trichlorofluoromethane (CFC 11)	19.8	20.0	99	69 - 141
Vinyl Chloride	20.3	20.0	101	72 - 138
cis-1,2-Dichloroethene	19.7	20.0	98	78 - 122
cis-1,3-Dichloropropene	20.5	20.0	103	77 - 125
m,p-Xylenes	41.2	40.0	103	79 - 126
n-Butyl Acetate	17.2	20.0	86	31 - 144
o-Xylene	20.7	20.0	104	77 - 118
trans-1,2-Dichloroethene	19.8	20.0	99	75 - 121
trans-1,3-Dichloropropene	20.9	20.0	105	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280843

Lab Control Sample
RQ1202134-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.6	20.0	98	72 - 128
1,1,2,2-Tetrachloroethane	22.0	20.0	110	72 - 131
1,1,2-Trichloroethane	20.0	20.0	100	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.7	20.0	89	68 - 136
1,1-Dichloroethane (1,1-DCA)	21.4	20.0	107	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.9	20.0	104	72 - 129
1,2,4-Trichlorobenzene	19.8	20.0	99	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	20.9	20.0	105	62 - 131
1,2-Dibromoethane	21.9	20.0	109	78 - 125
1,2-Dichlorobenzene	20.4	20.0	102	79 - 124
1,2-Dichloroethane	20.1	20.0	101	73 - 127
1,2-Dichloropropane	19.9	20.0	100	80 - 123
1,3-Dichlorobenzene	20.0	20.0	100	78 - 124
1,4-Dichlorobenzene	20.1	20.0	100	78 - 123
n-Butanol	1300	1000	130	70 - 130
2-Butanone (MEK)	20.6	20.0	103	60 - 133
2-Hexanone	20.7	20.0	104	61 - 131
4-Methyl-2-pentanone	20.3	20.0	101	61 - 132
Acetone	14.5	20.0	73	54 - 139
Benzene	19.2	20.0	96	78 - 121
Bromodichloromethane	20.7	20.0	103	80 - 125
Bromoform	21.5	20.0	107	68 - 130
Bromomethane	17.4	20.0	87	57 - 144
Carbon Disulfide	22.3	20.0	112	52 - 140
Carbon Tetrachloride	19.5	20.0	97	68 - 133
Chlorobenzene	20.3	20.0	102	80 - 121
Chloroethane	20.7	20.0	103	71 - 130
Chloroform	22.1	20.0	111	78 - 125
Chloromethane	21.2	20.0	106	61 - 138
Cyclohexane	17.1	20.0	86	57 - 126
Dibromochloromethane	21.6	20.0	108	78 - 133
Dichlorodifluoromethane (CFC 12)	17.4	20.0	87	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280843

Lab Control Sample
RQ1202134-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.8	20.0	104	75 - 125
Ethylbenzene	20.4	20.0	102	78 - 123
Isopropylbenzene (Cumene)	19.9	20.0	99	73 - 133
Methyl Acetate	21.4	20.0	107	57 - 157
Methyl tert-Butyl Ether	21.4	20.0	107	75 - 126
Methylcyclohexane	18.4	20.0	92	61 - 125
Styrene	20.1	20.0	100	80 - 132
Tetrachloroethene (PCE)	19.4	20.0	97	72 - 131
Toluene	20.1	20.0	100	78 - 122
Trichloroethene (TCE)	19.2	20.0	96	74 - 127
Trichlorofluoromethane (CFC 11)	20.1	20.0	101	69 - 141
Vinyl Chloride	20.7	20.0	103	72 - 138
cis-1,2-Dichloroethene	19.6	20.0	98	78 - 122
cis-1,3-Dichloropropene	19.5	20.0	97	77 - 125
m,p-Xylenes	39.5	40.0	99	79 - 126
n-Butyl Acetate	18.8	20.0	94	31 - 144
o-Xylene	20.4	20.0	102	77 - 118
trans-1,2-Dichloroethene	20.9	20.0	104	75 - 121
trans-1,3-Dichloropropene	20.1	20.0	101	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280878

Lab Control Sample
RQ1201947-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.7	20.0	83	72 - 128
1,1,2,2-Tetrachloroethane	22.2	20.0	111	72 - 131
1,1,2-Trichloroethane	19.1	20.0	96	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.7	20.0	79	68 - 136
1,1-Dichloroethane (1,1-DCA)	17.8	20.0	89	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.5	20.0	87	72 - 129
1,2,4-Trichlorobenzene	18.1	20.0	91	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.2	20.0	106	62 - 131
1,2-Dibromoethane	20.6	20.0	103	78 - 125
1,2-Dichlorobenzene	19.7	20.0	99	79 - 124
1,2-Dichloroethane	20.1	20.0	101	73 - 127
1,2-Dichloropropane	18.9	20.0	95	80 - 123
1,3-Dichlorobenzene	19.2	20.0	96	78 - 124
1,4-Dichlorobenzene	19.3	20.0	97	78 - 123
n-Butanol	989	1000	99	70 - 130
2-Butanone (MEK)	18.4	20.0	92	60 - 133
2-Hexanone	19.6	20.0	98	61 - 131
4-Methyl-2-pentanone	18.8	20.0	94	61 - 132
Acetone	16.0	20.0	80	54 - 139
Benzene	17.8	20.0	89	78 - 121
Bromodichloromethane	19.0	20.0	95	80 - 125
Bromoform	20.5	20.0	103	68 - 130
Bromomethane	16.3	20.0	81	57 - 144
Carbon Disulfide	19.8	20.0	99	52 - 140
Carbon Tetrachloride	18.0	20.0	90	68 - 133
Chlorobenzene	19.0	20.0	95	80 - 121
Chloroethane	17.1	20.0	86	71 - 130
Chloroform	17.9	20.0	90	78 - 125
Chloromethane	19.0	20.0	95	61 - 138
Cyclohexane	17.1	20.0	85	57 - 126
Dibromochloromethane	21.8	20.0	109	78 - 133
Dichlorodifluoromethane (CFC 12)	16.0	20.0	80	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 280878

Lab Control Sample
RQ1201947-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.7	20.0	94	75 - 125
Ethylbenzene	18.2	20.0	91	78 - 123
Isopropylbenzene (Cumene)	18.5	20.0	93	73 - 133
Methyl Acetate	19.2	20.0	96	57 - 157
Methyl tert-Butyl Ether	18.3	20.0	91	75 - 126
Methylcyclohexane	17.6	20.0	88	61 - 125
Styrene	18.8	20.0	94	80 - 132
Tetrachloroethene (PCE)	17.9	20.0	89	72 - 131
Toluene	18.0	20.0	90	78 - 122
Trichloroethene (TCE)	17.1	20.0	85	74 - 127
Trichlorofluoromethane (CFC 11)	16.9	20.0	85	69 - 141
Vinyl Chloride	17.6	20.0	88	72 - 138
cis-1,2-Dichloroethene	17.5	20.0	88	78 - 122
cis-1,3-Dichloropropene	18.2	20.0	91	77 - 125
m,p-Xylenes	37.8	40.0	94	79 - 126
n-Butyl Acetate	19.8	20.0	99	31 - 144
o-Xylene	19.2	20.0	96	77 - 118
trans-1,2-Dichloroethene	17.1	20.0	86	75 - 121
trans-1,3-Dichloropropene	18.9	20.0	95	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 281034

Analyte Name	Lab Control Sample RQ1201994-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	15.8	20.0	79	72 - 128
1,1,2,2-Tetrachloroethane	19.1	20.0	95	72 - 131
1,1,2-Trichloroethane	18.3	20.0	92	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.2	20.0	76	68 - 136
1,1-Dichloroethane (1,1-DCA)	17.2	20.0	86	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.4	20.0	87	72 - 129
1,2,4-Trichlorobenzene	17.5	20.0	87	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.9	20.0	95	62 - 131
1,2-Dibromoethane	20.1	20.0	100	78 - 125
1,2-Dichlorobenzene	18.6	20.0	93	79 - 124
1,2-Dichloroethane	18.7	20.0	93	73 - 127
1,2-Dichloropropane	18.3	20.0	92	80 - 123
1,3-Dichlorobenzene	18.2	20.0	91	78 - 124
1,4-Dichlorobenzene	18.5	20.0	92	78 - 123
n-Butanol	945	1000	94	70 - 130
2-Butanone (MEK)	15.6	20.0	78	60 - 133
2-Hexanone	17.1	20.0	85	61 - 131
4-Methyl-2-pentanone	16.5	20.0	82	61 - 132
Acetone	15.6	20.0	78	54 - 139
Benzene	17.3	20.0	87	78 - 121
Bromodichloromethane	18.0	20.0	90	80 - 125
Bromoform	18.8	20.0	94	68 - 130
Bromomethane	16.0	20.0	80	57 - 144
Carbon Disulfide	15.0	20.0	75	52 - 140
Carbon Tetrachloride	16.8	20.0	84	68 - 133
Chlorobenzene	18.6	20.0	93	80 - 121
Chloroethane	16.8	20.0	84	71 - 130
Chloroform	17.2	20.0	86	78 - 125
Chloromethane	17.1	20.0	86	61 - 138
Cyclohexane	15.0	20.0	75	57 - 126
Dibromochloromethane	20.6	20.0	103	78 - 133
Dichlorodifluoromethane (CFC 12)	15.3	20.0	76	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 281034

Lab Control Sample
RQ1201994-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	17.9	20.0	90	75 - 125
Ethylbenzene	17.8	20.0	89	78 - 123
Isopropylbenzene (Cumene)	17.9	20.0	89	73 - 133
Methyl Acetate	17.4	20.0	87	57 - 157
Methyl tert-Butyl Ether	17.2	20.0	86	75 - 126
Methylcyclohexane	16.7	20.0	84	61 - 125
Styrene	17.9	20.0	89	80 - 132
Tetrachloroethene (PCE)	17.4	20.0	87	72 - 131
Toluene	17.4	20.0	87	78 - 122
Trichloroethene (TCE)	17.0	20.0	85	74 - 127
Trichlorofluoromethane (CFC 11)	16.6	20.0	83	69 - 141
Vinyl Chloride	16.8	20.0	84	72 - 138
cis-1,2-Dichloroethene	16.9	20.0	85	78 - 122
cis-1,3-Dichloropropene	17.3	20.0	86	77 - 125
m,p-Xylenes	36.9	40.0	92	79 - 126
n-Butyl Acetate	17.7	20.0	88	31 - 144
o-Xylene	18.4	20.0	92	77 - 118
trans-1,2-Dichloroethene	17.0	20.0	85	75 - 121
trans-1,3-Dichloropropene	17.3	20.0	86	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/23/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 281208

Lab Control Sample
RQ1202074-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	21.9	20.0	110	72 - 128
1,1,2,2-Tetrachloroethane	22.0	20.0	110	72 - 131
1,1,2-Trichloroethane	19.9	20.0	100	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.2	20.0	101	68 - 136
1,1-Dichloroethane (1,1-DCA)	22.0	20.0	110	76 - 124
1,1-Dichloroethene (1,1-DCE)	22.3	20.0	111	72 - 129
1,2,4-Trichlorobenzene	21.7	20.0	108	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.3	20.0	96	62 - 131
1,2-Dibromoethane	20.4	20.0	102	78 - 125
1,2-Dichlorobenzene	22.0	20.0	110	79 - 124
1,2-Dichloroethane	21.2	20.0	106	73 - 127
1,2-Dichloropropane	21.3	20.0	106	80 - 123
1,3-Dichlorobenzene	22.0	20.0	110	78 - 124
1,4-Dichlorobenzene	22.1	20.0	111	78 - 123
n-Butanol	967	1000	96	70 - 130
2-Butanone (MEK)	17.8	20.0	89	60 - 133
2-Hexanone	16.9	20.0	85	61 - 131
4-Methyl-2-pentanone	16.2	20.0	81	61 - 132
Acetone	15.9	20.0	79	54 - 139
Benzene	21.4	20.0	107	78 - 121
Bromodichloromethane	21.9	20.0	110	80 - 125
Bromoform	20.6	20.0	103	68 - 130
Bromomethane	17.2	20.0	86	57 - 144
Carbon Disulfide	24.4	20.0	122	52 - 140
Carbon Tetrachloride	23.5	20.0	118	68 - 133
Chlorobenzene	22.0	20.0	110	80 - 121
Chloroethane	22.9	20.0	114	71 - 130
Chloroform	23.9	20.0	120	78 - 125
Chloromethane	22.4	20.0	112	61 - 138
Cyclohexane	16.7	20.0	83	57 - 126
Dibromochloromethane	21.9	20.0	110	78 - 133
Dichlorodifluoromethane (CFC 12)	19.1	20.0	96	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/23/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 281208

Lab Control Sample
RQ1202074-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.9	20.0	109	75 - 125
Ethylbenzene	22.8	20.0	114	78 - 123
Isopropylbenzene (Cumene)	22.5	20.0	113	73 - 133
Methyl Acetate	18.6	20.0	93	57 - 157
Methyl tert-Butyl Ether	20.0	20.0	100	75 - 126
Methylcyclohexane	18.6	20.0	93	61 - 125
Styrene	21.8	20.0	109	80 - 132
Tetrachloroethene (PCE)	22.1	20.0	110	72 - 131
Toluene	22.3	20.0	112	78 - 122
Trichloroethene (TCE)	22.2	20.0	111	74 - 127
Trichlorofluoromethane (CFC 11)	21.9	20.0	109	69 - 141
Vinyl Chloride	22.9	20.0	114	72 - 138
cis-1,2-Dichloroethene	21.1	20.0	105	78 - 122
cis-1,3-Dichloropropene	20.6	20.0	103	77 - 125
m,p-Xylenes	44.1	40.0	110	79 - 126
n-Butyl Acetate	15.8	20.0	79	31 - 144
o-Xylene	21.8	20.0	109	77 - 118
trans-1,2-Dichloroethene	22.9	20.0	114	75 - 121
trans-1,3-Dichloropropene	20.8	20.0	104	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/22/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 280938

Lab Control Sample
RQ1201868-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	29.7	26.0	114	56 - 148
Ethene	26.4	24.3	109	58 - 155
Methane	29.7	26.2	113	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/23/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 281108

Analyte Name	Lab Control Sample RQ1201921-02 Result	Spike Amount	% Rec	% Rec Limits
Ethane	29.2	26.0	112	56 - 148
Ethene	26.4	24.3	108	58 - 155
Methane	28.9	26.2	110	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/27/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 281444

	Lab Control Sample RQ1202015-02			Duplicate Lab Control Sample RQ1202015-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	23.2	26.0	89	22.3	26.0	86	56 - 148	4	30
Ethene	19.8	24.3	81	19.3	24.3	79	58 - 155	2	30
Methane	23.4	26.2	89	22.5	26.2	86	55 - 150	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/28/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 281606

Lab Control Sample
RQ1202058-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	29.9	26.0	115	56 - 148
Ethene	26.5	24.3	109	58 - 155
Methane	30.2	26.2	115	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/20/12

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 281004

	Lab Control Sample RQ1201891-02			Duplicate Lab Control Sample RQ1201891-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.07	1.00	107	1.04	1.00	104	70 - 130	3	30
Acetic Acid	9.74	10.3	95	9.65	10.3	94	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.6	10.1	104	10.5	10.1	103	78 - 113	1	30
Lactic Acid	9.15	10.0	91	8.83	10.0	88	61 - 109	4	30
Propionic Acid	9.46	10.1	94	9.44	10.1	94	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 2/14-16/12/ TR0272A
Sample Matrix: Water

Service Request: R1201031
Date Analyzed: 2/21/12

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analytical Method: Organic Acids

Units: mg/L
Basis: NA

Analysis Lot: 281004

	Lab Control Sample RQ1201891-07			Duplicate Lab Control Sample RQ1201891-08					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	1.07	1.00	107	1.04	1.00	104	70 - 130	3	30
Acetic Acid	9.68	10.3	94	9.60	10.3	94	70 - 135	<1	30
Butanoic Acid (Butyric Acid)	10.6	10.1	104	10.6	10.1	104	78 - 113	<1	30
Lactic Acid	9.43	10.0	94	9.09	10.0	91	61 - 109	4	30
Propionic Acid	9.99	10.1	99	9.90	10.1	98	80 - 125	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-RW0007-038.5-20120214	2/14/2012	1018	-001, 002	W	15	3	1	1	3	1	3	1	1	1	
LC34-RW0008-052.0-20120214	2/14/2012	1110	-003, 004	W	15	3	1	1	3	1	3	1	1	1	
LC34-BW0002C-038.5-20120214	2/14/2012	1444	-005, ~~006~~ 2/15/12	W	14	3	1	1	3	1	3	1	1		
LC34-BW0002D-045.5-20120214	2/14/2012	1410	-006	W	11	3	1	1	3		3				
LC34-BW0002E-052.5-20120214	2/14/2012	1326	-007	W	11	3	1	1	3		3				
LC34-BW0002F-059.5-20120214	2/14/2012	1245	-008	W	11	3	1	1	3		3				
LC34-IW0067D-040.5-20120214	2/14/2012	1415	-009	W	15	3			3						
LC34-IW0067D1-068.0-20120214	2/14/2012	1346	-010	W	15	3			3						
LC34-IW0071D1-070.0-20120214	2/14/2012	1454	~~-012~~ -011 2/15/12	W	15	3			3						

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

2 coolers

R1201031
GeoSyntec Consultants
ESTCP PED LC34 2/14/12

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Bartlett	Printed Name: FedEx	Printed Name:	Printed Name: Gregory LaFave
Firm: GeoSyntec	Firm:	Firm:	Firm: ALS
Date/Time: 2/14/12 - 1638	Date/Time:	Date/Time:	Date/Time: 2/15/12 0945

1 of 2

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-FD-20120214-01	2/14/2012	NA	-012	W	3	3									
LC34-FD-20120214-02	2/14/2012	NA	-013	W	1									1	
LC34-FD-20120214-03	2/14/2012	NA	-014	W	1							1			
LC34-TB-20120214-01	2/14/2012	NA	-015	W	3	3									
LC34-TB-20120214-02	2/14/2012	NA	-016	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: _TR0272A_____

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x ____ III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

2 coolers

R1200103I

RELINQUISHED BY:

Signature:

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 2/14/12 - 1630

RECEIVED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Gregory LeFevre

Firm: ALS

Date/Time: 2/15/12 ~~0945~~ 0945

89268

Cooler Receipt and Preservation Check Form

Project/Client Geosyntec Folder Number R1201031

Cooler received on 2/15/12 by: RD **COURIER:** ALS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?			YES	NO	
2.	Were custody papers properly filled out (ink, signed, etc.)?			YES	NO	
3.	Did all bottles arrive in good condition (unbroken)?			YES	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?			YES	NO	N/A
5.	Were **Ice** or **Ice packs** present?			YES	NO	
6.	Where did the bottles originate?			ALS/ROC,	CLIENT	
7.	Temperature of cooler(s) upon receipt:	5.7°	3.2°	4.6°	2.1°	____
	Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 2/15/12 0952

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: ____

All Samples held in storage location R-002 by RD on 2/15/12 at 1000

5035 samples placed in storage location F-01 by RD on 2/15/12 at 1000

PC Secondary Review: KB 2/15/12

Cooler Breakdown: Date: 2/15/12 Time: 1250 by: RD

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		N/A

Explain any discrepancies: Did not receive LC34-FD-20120214-01 TOC vial

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC103138C	1/13				
≤2	HNO_3								
≤2	H_2SO_4			WC103193G	1/13				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC103265B	2/13				
	HCl	*	*	4111060	1/13				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: ____

Bottle lot numbers: 0-286-002, 1-286-001, 12121-0XX, 060611-1W, 062711-2Z, 1-194-002

Other Comments:

H_3PO_4 lot: WC103104G Exp. 1/13 06

PC Secondary Review: KB 3/6/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
					Analysis Requested										
LC34-BW0002A-024.5-20120215	2/15/2012	1112	-017	W	13	3	3	1	3		3				QC - VFAs ✓
LC34-BW0002B-031.5-20120215	2/15/2012	1024	-018	W	14	3	1	1	6		3				QC - TOC
LC34-BW0003A-024.5-20120215	2/15/2012	1305	-019	W	11	3	1	1	3		3				
LC34-BW0003B-031.5-20120215	2/15/2012	1228	-020	W	12	3	1	2	3		3				QC - Br and I
LC34-BW0003C-038.5-20120215	2/15/2012	1150	-021	W	15	3	1	1	3	2	3	1	1		QC - Sulfide
LC34-BW0003D-045.5-20120215	2/15/2012	1340	-022	W	14	3	1	1	3		6				QC - MEEs
LC34-BW0003E-052.5-20120215	2/15/2012	1427	-023	W	11	3	1	1	3		3				
LC34-BW0003F-059.5-20120215	2/15/2012	1503	-024	W	11	3	1	1	3		3				
LC34-IW0002I-027.5-20120215	2/15/2012	1353	-025, -026	W	16	3	1	1	3	1	3	2	1	1	QC - Anions
LC34-IW0070D-040.5-20120215	2/15/2012	1210	-026, -027	W	6	3			3						

HB 2/16/12

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

3 coolers

R1201031
GeoSyntec Consultants
ESTCP PED LC34 2/14-16/12

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature: [signature]
Printed Name: JOSEPH BARTLETT	Printed Name:	Printed Name:	Printed Name: Gregory LaTour
Firm: GEOSYNTEC	Firm: FedEx	Firm:	Firm: ALS
Date/Time: 2/15/12 – 1636	Date/Time:	Date/Time:	Date/Time: 2/16/12 1110

61208

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-IW0070D1-070.0-20120215	2/15/2012	1138	-028	W	6	3			3						
LC34-IW0071D-040.5-20120215	2/15/2012	1058	-029	W	9	6			3						QC - VOCs
LC34-IW0076-075.0-20120215	2/15/2012	1453	-030, 031	W	12	3	1	1	3		3			1	
LC34-FD-20120215-01	2/15/2012	NA	-032	W	3						3				
LC34-FD-20120215-02	2/15/2012	NA	-033	W	1								1		
LC34-FD-20120215-03	2/15/2012	NA	-034	W	1		1								
LC34-TB-20120215-01	2/15/2012	NA	-035	W	3	3									
LC34-TB-20120215-01	2/15/2012	NA	-036	W	3	3									
LC34-TB-20120215-01	2/15/2012	NA	-037	W	3	3									
				~~W~~	~~0~~	DB									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

3 coolers

R1201031
GeoSyntec Consultants
ESTCP PED LC34 2/14-15/12

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Bartlett	Printed Name:	Printed Name:	Printed Name:
Firm: GeoSyntec	Firm:	Firm:	Firm: ALS
Date/Time: 2/15/12 - 1630	Date/Time:	Date/Time:	Date/Time: 2/16/12 1110

p. 2 of 2

1298

R1201031
GeoSyntec Consultants
ESTCP PED LC34 2/14-16/12

Cooler Receipt and Preservation Check Form

Project/Client Geosyntec Folder Number R12-1031

Cooler received on 2/16/12 by: RD **COURIER:** ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)		
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO		
3.	Did all bottles arrive in good condition (unbroken)?	YES	(NO)		
4.	Did ~~VOA vials~~, ~~Alkalinity~~, or Sulfide have significant* air bubbles?	(YES)	NO	N/A	
5.	Were **Ice** or **Ice packs** present?	(YES)	NO		
6.	Where did the bottles originate?	(ALS/ROC),	CLIENT		
7.	Temperature of cooler(s) upon receipt:	3.2°	2.3°	2.9°	____ ____
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	(Yes)	Yes Yes
	If No, Explain Below	No	No	No	No No

Date/Time Temperatures Taken: 2/16/12 1118

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: ____

All Samples held in storage location R-002 by RD on 2/16/12 at 1133
5035 samples placed in storage location ____ by ____ on ____ at ____

PC Secondary Review: 2/16/12 VB

Cooler Breakdown: Date: 2/16/12 Time: 1422 by: DW

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	~~YES~~	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	~~YES~~	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: ____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC1039936	1/13				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC1032105F	10/12				
	HCl	*	*	4111060	1/13				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: ____

Bottle lot numbers: I-194-002, I-286-002, 121211-2XX, 060611-1W, 062711-2Z

Other Comments:

Trip Blank vial seal broken

Bubbles = BW0003C - sulfide + alkalinity
BW0003A - (2) RSK-175 vial
BW0003E - (1) 8260 vial
FD-20120215-01 - (1) RSK-175 vial
BW0003F - (1) RSK-175 vial
BW0003J - (1) RSK-175 vial

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

PC Secondary Review: VB 3/6/12

H:\SMODOCS\Cooler Receipt 5.doc

00272

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
						Analysis Requested									
LC34-BW0001A-024.5-20120216	2/16/2012	0839	-038, 039	W	16	3	1	1	3	1	3	1	2	1	QC - Anions
LC34-BW0001B-031.5-20120216	2/16/2012	0924	-040, 041 QC	W	16	3	1	1	3	1	3	1	1	2	QC - Dissolved Metals
LC34-BW0001C-038.5-20120216	2/16/2012	1005	-042, -043	W	15	3	1	1	3	1	3	1	1	1	
LC34-BW0001D-045.5-20120216	2/16/2012	1211	-044, 045	W	15	3	1	1	3	1	3	1	1	1	
LC34-BW0001E-052.5-20120216	2/16/2012	1115	-046, -047	W	15	3	1	1	3	1	3	1	1	1	
LC34-BW0001F-059.5-20120216	2/16/2012	1103	-048, 049	W	15	3	1	1	3	1	3	1	1	1	
LC34-1W0002D-037.5-20120216	2/16/2012	1419	-050, -051	W	15	3	1	1	3	1	3	1	1	1	
LC34-1W0002D1-052.5-20120216	2/16/2012	1333	-052, 053	W	18	6	1	1	3	1	3	1	1	1	QC - VOCs

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

3 coolers

@ 11:36 as per client email CB 2/17/12

R1201031
GeoSyntec Consultants
ESTCP PED LC34 2/14-16/12

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature: [signature]
Printed Name: Joseph Bartlett	Printed Name:	Printed Name:	Printed Name: Gregory Lofton
Firm: GeoSyntec	Firm: FED EX	Firm:	Firm: ALS
Date/Time: 2/16/12 - 1630	Date/Time:	Date/Time:	Date/Time: 2/17/12 1000

0272

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** TR0272A

Project Manager: Cory Repta **Company:** Geosyntec Consultants

Company/Address: 130 Research Lane, Suite 2 **Phone:** 519-822-2230

City, State, Zip: Guelph, ON, N1G 5G3 **FAX:**

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Anions (300.0)	Alkalinity (310.1)	Dissolved Metals (6010B)	REMARKS
LC34-FD-20120216-01	2/16/2012	NA	-054	W	3				3						
LC34-FD-20120216-02	2/16/2012	NA	-055	W	1					1					
LC34-FD-20120216-03	2/16/2012	NA	-056	W	1			1							
LC34-IDW-185539-20120216	2/16/2012	NA	-057	W	3	3									
LC34-TB-20120216-01	2/16/2012	NA	-058	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: TR0272A

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

Please filter dissolved metals in lab.

3 coolers

R1201031
GeoSyntec Consultants
ESTCP PED LC34 2/14-16/12

RELINQUISHED BY:
Signature:
Printed Name: JOSEPH BARTLETT
Firm: GEOSYNTEC
Date/Time: 2/16/12 - 1630

RECEIVED BY:
Signature:
Printed Name:
Firm: FEDEX
Date/Time:

RELINQUISHED BY:
Signature:
Printed Name:
Firm:
Date/Time:

RECEIVED BY:
Signature:
Printed Name: Gregory LaTour
Firm: ACS
Date/Time: 2/17/12 1000

p. 2 of 2

TL 2608

R1201031
GeoSyntec Consultants
ESTCP PED LC34 2/14-16/12

Cooler Receipt and Preservation Check Form

Project/Client Geosyntec Folder Number R1201031

Cooler received on 2/17/12 by: (JH) **COURIER:** ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did (VOA vials, Alkalinity, or Sulfide) have significant* air bubbles?	(YES)	NO	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(ALS/ROC), CLIENT				
7.	Temperature of cooler(s) upon receipt:	5.9°	4.7°	4.6°	____	____
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	(Yes)	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 2/17/12 1004

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: ____

All Samples held in storage location R-002 by (JH) on 2/17/12 at 1016
5035 samples placed in storage location ____ by ____ on ____ at ____

PC Secondary Review: KB 2/17/12

Cooler Breakdown: Date: 2/17/12 Time: 1130 by: (JH)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	~~(YES)~~	(NO)
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: BW0001E missing, BW0001C provided w/ wrong sample time

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH			WC103138C	1/13				
≤2	HNO_3								
≤2	H_2SO_4			WC103193G	1/13				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-	WC103210F	10/12				
	HCl	*	*	411/0010	1/13				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: ____

Bottle lot numbers: 062711-27, 1-194-002, 060611-1W, 121211-2XX, 1-286-002

Other Comments:

Bubbles – alkalenity + sulfid = ael
VOA = 1W0002D2 (1 vial)

PC Secondary Review: KB 3/6/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

April 02, 2012 Service Request No: R1201733

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 FO0510B 3/15/12

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on March 16, 2012. For your reference, these analyses have been assigned our service request number **R1201733**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

Client:	Geosyntec Consultants	**Service Request No.:**	R1201733
Project:	ESTCP PED LC34/ TR0272A 3/15/12	**Date Received:**	3/16/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 3/15/12 and were received for analysis at Columbia Analytical Services on 3/16/12 via a national courier The samples were received at a cooler temperature of 1.5°C within the guidelines of 0-6°C. A Trip Blank was received but not analyzed as per client instructions.

Volatile Organic Compounds GC/MS

Two (2) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except for %D which was outside the 20% limit for N-Butanol on the 3/22/12 run. Any hits for this compound on the associated run should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits.

Samples required dilutions in order to bring hits within the calibration range of the standards.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Beenhee **Date** 3/21/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1201733

Lab ID	Client ID
R1201733-001	LC34-RW0007-038.5-20120315
R1201733-002	LC34-RW0008-052.0-20120315

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1201733
Project:	ESTCP PED LC34 FO0510B 3/15/12	**Date Collected:**	3/15/12 1406
Sample Matrix:	Water	**Date Received:**	3/16/12
		Date Analyzed:	3/22/12 12:19
Sample Name:	LC34-RW0007-038.5-20120315	**Units:**	µg/L
Lab Code:	R1201733-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	284464
Data File Name:	J:\ACQUDATA\msvoa10\data\032212\D9054.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	130	U	130	5.8	
79-34-5	1,1,2,2-Tetrachloroethane	130	U	130	5.0	
79-00-5	1,1,2-Trichloroethane	130	U	130	5.8	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**870**		130	7.8	
75-34-3	1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	130	U	130	7.3	
120-82-1	1,2,4-Trichlorobenzene	130	U	130	6.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	
106-93-4	1,2-Dibromoethane	130	U	130	5.0	
95-50-1	1,2-Dichlorobenzene	130	U	130	5.0	
107-06-2	1,2-Dichloroethane	130	U	130	5.0	
78-87-5	1,2-Dichloropropane	130	U	130	7.1	
541-73-1	1,3-Dichlorobenzene	130	U	130	5.0	
106-46-7	1,4-Dichlorobenzene	130	U	130	5.0	
71-36-3	n-Butanol	6300	U	6300	270	
78-93-3	2-Butanone (MEK)	250	U	250	13	
591-78-6	2-Hexanone	250	U	250	8.8	
108-10-1	4-Methyl-2-pentanone	250	U	250	6.8	
67-64-1	Acetone	250	U	250	25	
71-43-2	Benzene	130	U	130	5.3	
75-27-4	Bromodichloromethane	130	U	130	5.0	
75-25-2	Bromoform	130	U	130	6.8	
74-83-9	Bromomethane	130	U	130	7.8	
75-15-0	Carbon Disulfide	**8.0**	I	250	5.0	
56-23-5	Carbon Tetrachloride	130	U	130	6.8	
108-90-7	Chlorobenzene	130	U	130	5.0	
75-00-3	Chloroethane	130	U	130	7.8	
67-66-3	Chloroform	130	U	130	5.5	
74-87-3	Chloromethane	130	U	130	6.0	
110-82-7	Cyclohexane	250	U	250	6.0	
124-48-1	Dibromochloromethane	130	U	130	5.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	130	U	130	15	
75-09-2	Dichloromethane	130	U	130	5.5	
100-41-4	Ethylbenzene	130	U	130	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201733
Project:	ESTCP PED LC34 FO0510B 3/15/12	**Date Collected:**	3/15/12 1406
Sample Matrix:	Water	**Date Received:**	3/16/12
		Date Analyzed:	3/22/12 12:19
Sample Name:	LC34-RW0007-038.5-20120315	**Units:**	µg/L
Lab Code:	R1201733-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	284464
Data File Name:	J:\ACQUDATA\msvoa10\data\032212\D9054.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	130	U	130	5.0	
79-20-9	Methyl Acetate	250	U	250	5.8	
1634-04-4	Methyl tert-Butyl Ether	130	U	130	5.0	
108-87-2	Methylcyclohexane	250	U	250	6.3	
100-42-5	Styrene	130	U	130	5.0	
127-18-4	Tetrachloroethene (PCE)	130	U	130	5.0	
108-88-3	Toluene	130	U	130	5.0	
79-01-6	Trichloroethene (TCE)	**120**	I	130	5.8	
75-69-4	Trichlorofluoromethane (CFC 11)	130	U	130	5.0	
75-01-4	Vinyl Chloride	**3000**		130	5.8	
156-59-2	cis-1,2-Dichloroethene	**3600**		130	5.0	
10061-01-5	cis-1,3-Dichloropropene	130	U	130	5.0	
179601-23-1	m,p-Xylenes	130	U	130	5.0	
123-86-4	n-Butyl Acetate	130	U	130	5.3	
95-47-6	o-Xylene	130	U	130	5.0	
156-60-5	trans-1,2-Dichloroethene	**160**		130	5.0	
10061-02-6	trans-1,3-Dichloropropene	130	U	130	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	3/22/12 12:19	
Dibromofluoromethane	112	89-119	3/22/12 12:19	
Toluene-d8	106	87-121	3/22/12 12:19	

Client:	GeoSyntec Consultants	**Service Request:**	R1201733
Project:	ESTCP PED LC34 FO0510B 3/15/12	**Date Collected:**	3/15/12 1431
Sample Matrix:	Water	**Date Received:**	3/16/12
		Date Analyzed:	3/22/12 12:49
Sample Name:	LC34-RW0008-052.0-20120315	**Units:**	µg/L
Lab Code:	R1201733-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	284464
Data File Name:	J:\ACQUDATA\msvoa10\data\032212\D9055.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1100**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**5.0**	I	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	100	U	100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	100	U	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	**4.9**	I	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1201733
Project:	ESTCP PED LC34 FO0510B 3/15/12	**Date Collected:**	3/15/12 1431
Sample Matrix:	Water	**Date Received:**	3/16/12
		Date Analyzed:	3/22/12 12:49
Sample Name:	LC34-RW0008-052.0-20120315	**Units:**	µg/L
Lab Code:	R1201733-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	284464
Data File Name:	J:\ACQUDATA\msvoa10\data\032212\D9055.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**620**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**900**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1100**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	17	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	3/22/12 12:49	
Dibromofluoromethane	112	89-119	3/22/12 12:49	
Toluene-d8	105	87-121	3/22/12 12:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1201733
Project:	ESTCP PED LC34 FO0510B 3/15/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	3/22/12 11:49
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202914-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	284464
Data File Name:	J:\ACQUDATA\msvoa10\data\032212\D9053.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1201733
Project:	ESTCP PED LC34 FO0510B 3/15/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	3/22/12 11:49
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1202914-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	284464
Data File Name:	J:\ACQUDATA\msvoa10\data\032212\D9053.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85-122	3/22/12 11:49	
Dibromofluoromethane	111	89-119	3/22/12 11:49	
Toluene-d8	105	87-121	3/22/12 11:49	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0510B 3/15/12
Sample Matrix: Water

Service Request: R1201733
Date Analyzed: 3/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 284464

Lab Control Sample
RQ1202914-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.7	20.0	104	72 - 128
1,1,2,2-Tetrachloroethane	21.4	20.0	107	72 - 131
1,1,2-Trichloroethane	20.6	20.0	103	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.1	20.0	101	68 - 136
1,1-Dichloroethane (1,1-DCA)	20.7	20.0	104	76 - 124
1,1-Dichloroethene (1,1-DCE)	21.0	20.0	105	72 - 129
1,2,4-Trichlorobenzene	19.4	20.0	97	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.7	20.0	99	62 - 131
1,2-Dibromoethane	21.7	20.0	108	78 - 125
1,2-Dichlorobenzene	20.3	20.0	102	79 - 124
1,2-Dichloroethane	22.6	20.0	113	73 - 127
1,2-Dichloropropane	21.0	20.0	105	80 - 123
1,3-Dichlorobenzene	20.2	20.0	101	78 - 124
1,4-Dichlorobenzene	19.9	20.0	100	78 - 123
n-Butanol	798	1000	80	70 - 130
2-Butanone (MEK)	19.9	20.0	100	60 - 133
2-Hexanone	20.6	20.0	103	61 - 131
4-Methyl-2-pentanone	19.7	20.0	98	61 - 132
Acetone	18.5	20.0	92	54 - 139
Benzene	21.6	20.0	108	78 - 121
Bromodichloromethane	22.8	20.0	114	80 - 125
Bromoform	22.8	20.0	114	68 - 130
Bromomethane	19.9	20.0	99	57 - 144
Carbon Disulfide	23.8	20.0	119	52 - 140
Carbon Tetrachloride	23.3	20.0	116	68 - 133
Chlorobenzene	21.6	20.0	108	80 - 121
Chloroethane	20.9	20.0	105	71 - 130
Chloroform	21.8	20.0	109	78 - 125
Chloromethane	21.8	20.0	109	61 - 138
Cyclohexane	19.1	20.0	95	57 - 126
Dibromochloromethane	23.4	20.0	117	78 - 133
Dichlorodifluoromethane (CFC 12)	23.5	20.0	118	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0510B 3/15/12
Sample Matrix: Water

Service Request: R1201733
Date Analyzed: 3/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 284464

Lab Control Sample
RQ1202914-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.1	20.0	105	75 - 125
Ethylbenzene	21.0	20.0	105	78 - 123
Isopropylbenzene (Cumene)	21.1	20.0	105	73 - 133
Methyl Acetate	20.0	20.0	100	57 - 157
Methyl tert-Butyl Ether	19.3	20.0	97	75 - 126
Methylcyclohexane	17.8	20.0	89	61 - 125
Styrene	20.2	20.0	101	80 - 132
Tetrachloroethene (PCE)	22.7	20.0	113	72 - 131
Toluene	21.2	20.0	106	78 - 122
Trichloroethene (TCE)	20.3	20.0	101	74 - 127
Trichlorofluoromethane (CFC 11)	24.5	20.0	122	69 - 141
Vinyl Chloride	20.9	20.0	104	72 - 138
cis-1,2-Dichloroethene	19.7	20.0	98	78 - 122
cis-1,3-Dichloropropene	19.8	20.0	99	77 - 125
m,p-Xylenes	43.3	40.0	108	79 - 126
n-Butyl Acetate	17.1	20.0	86	31 - 144
o-Xylene	21.0	20.0	105	77 - 118
trans-1,2-Dichloroethene	20.1	20.0	100	75 - 121
trans-1,3-Dichloropropene	20.2	20.0	101	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** FO0510B

Project Manager: Rebecca Daprato **Company:** Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Ste. 3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5813

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20120315	3/15/2012	1406	-001	W	3	3									
LC34-RW0008-052.0-20120315	3/15/2012	1431	-002	W	3	3									
LC34-TB-20120315	3/15/2012	NA	-003	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

_X_ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: FO0510B

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1201733
GeoSyntec Consultants
ESTCP PED LC34 FO0510B 3/15/12

RELINQUISHED BY:
Signature: [signature]
Printed Name: J. BARTLETT
Firm: Geosyntec
Date/Time: 3/15/12-1630

RECEIVED BY:
Signature:
Printed Name: PED 201
Firm:
Date/Time:

RELINQUISHED BY:
Signature:
Printed Name:
Firm:
Date/Time:

RECEIVED BY:
Signature: [signature]
Printed Name: Gregory LaFave
Firm: ACS
Date/Time: 3/16/12 0940

Cooler Receipt and Preservation Check Form

Project/Client Geosyntec Folder Number R1201733

Cooler received on 3/16/12 by: (initials) COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?			YES	(NO)	
2.	Were custody papers properly filled out (ink, signed, etc.)?			(YES)	NO	
3.	Did all bottles arrive in good condition (unbroken)?			(YES)	NO	
4.	Did ~~VOA vials~~, Alkalinity, or Sulfide have significant* air bubbles?			YES	(NO)	N/A
5.	Were **Ice** or **Ice packs** present?			(YES)	NO	
6.	Where did the bottles originate?			(ALS/ROC), CLIENT		
7.	Temperature of cooler(s) upon receipt:	1.5°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 3/16/12 0949

Thermometer ID: (~~IR GUN#3~~) / IR GUN#4 Reading From: (~~Temp Blank~~) / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: _____

All Samples held in storage location R-002 by (initials) on 3/16/12 at 0950

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: (initials) 3/16/12

Cooler Breakdown: Date: 3/16/12 Time: 1244 by: (initials)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 1-286-002

Other Comments:

PC Secondary Review: (initials) 4/2/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

May 07, 2012 Service Request No: R1202512

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 FO552B (4/19/12)

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on April 20, 2012. For your reference, these analyses have been assigned our service request number **R1202512**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

PROJECT SOLUTIONS

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1202512

Lab ID	Client ID
R1202512-001	LC34-RW0007-038.5-20120419
R1202512-002	LC34-RW0008-052.0-20120419

Client:	Geosyntec Consultants	**Service Request No.:**	R1202512
Project:	ESTCP PED LC34/ FO552B (4/19/12)	**Date Received:**	4/20/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 4/19/12 and were received for analysis at Columbia Analytical Services from 4/20/12 via a national courier The samples were received at a cooler temperature of 7.1°C slightly above the guidelines of 0-6°C. Ice was present in the cooler with the samples and the temperature was noted on the sample confirmation. The chain of custody forms were consistent with the samples received.

Volatile Organic Compounds GC/MS

Thirty-eight (38) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except for %D which was outside the 20% limit for the following compounds: Methyl Acetate, MTBE, and 2-Butanone on the 4/24/12 run. Any hits for these compounds on the associated runs should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for a low level hit of Bromomethane on the 4/24/12 blank. No data was affected.

No other analytical or QC problems were encountered.

Approved by Karen Burdick **Date** 5/7/12

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1202512
Project:	ESTCP PED LC34 FO552B (4/19/12)	**Date Collected:**	4/19/12 1112
Sample Matrix:	Water	**Date Received:**	4/20/12
Sample Name:	LC34-RW0007-038.5-20120419	**Units:**	µg/L
Lab Code:	R1202512-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	130	U	130	5.8	25	NA	4/24/12 13:07		288728	
1,1,2,2-Tetrachloroethane	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
1,1,2-Trichloroethane	130	U	130	5.8	25	NA	4/24/12 13:07		288728	
1,1,2-Trichloro-1,2,2-trifluoroethane	**8200**		250	16	50	NA	4/24/12 14:13		288728	
1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
1,1-Dichloroethene (1,1-DCE)	130	U	130	7.3	25	NA	4/24/12 13:07		288728	
1,2,4-Trichlorobenzene	130	U	130	6.5	25	NA	4/24/12 13:07		288728	
1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	25	NA	4/24/12 13:07		288728	
1,2-Dibromoethane	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
1,2-Dichlorobenzene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
1,2-Dichloroethane	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
1,2-Dichloropropane	130	U	130	7.1	25	NA	4/24/12 13:07		288728	
1,3-Dichlorobenzene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
1,4-Dichlorobenzene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
n-Butanol	6300	U	6300	270	25	NA	4/24/12 13:07		288728	
2-Butanone (MEK)	250	U	250	13	25	NA	4/24/12 13:07		288728	
2-Hexanone	250	U	250	8.8	25	NA	4/24/12 13:07		288728	
4-Methyl-2-pentanone	250	U	250	6.8	25	NA	4/24/12 13:07		288728	
Acetone	250	U	250	25	25	NA	4/24/12 13:07		288728	
Benzene	130	U	130	5.3	25	NA	4/24/12 13:07		288728	
Bromodichloromethane	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Bromoform	130	U	130	6.8	25	NA	4/24/12 13:07		288728	
Bromomethane	130	U	130	7.8	25	NA	4/24/12 13:07		288728	
Carbon Disulfide	**9.0**	I	250	5.0	25	NA	4/24/12 13:07		288728	
Carbon Tetrachloride	130	U	130	6.8	25	NA	4/24/12 13:07		288728	
Chlorobenzene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Chloroethane	130	U	130	7.8	25	NA	4/24/12 13:07		288728	
Chloroform	130	U	130	5.5	25	NA	4/24/12 13:07		288728	
Chloromethane	130	U	130	6.0	25	NA	4/24/12 13:07		288728	
Cyclohexane	250	U	250	6.0	25	NA	4/24/12 13:07		288728	
Dibromochloromethane	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Dichlorodifluoromethane (CFC 12)	130	U	130	15	25	NA	4/24/12 13:07		288728	
Dichloromethane	130	U	130	5.5	25	NA	4/24/12 13:07		288728	
Ethylbenzene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Isopropylbenzene (Cumene)	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Methyl Acetate	250	U	250	5.8	25	NA	4/24/12 13:07		288728	

Client:	GeoSyntec Consultants	**Service Request:**	R1202512
Project:	ESTCP PED LC34 FO552B (4/19/12)	**Date Collected:**	4/19/12 1112
Sample Matrix:	Water	**Date Received:**	4/20/12
Sample Name:	LC34-RW0007-038.5-20120419	**Units:**	µg/L
Lab Code:	R1202512-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Methylcyclohexane	250	U	250	6.3	25	NA	4/24/12 13:07		288728	
Styrene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Tetrachloroethene (PCE)	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Toluene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Trichloroethene (TCE)	**650**		130	5.8	25	NA	4/24/12 13:07		288728	
Trichlorofluoromethane (CFC 11)	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
Vinyl Chloride	**8100**		250	12	50	NA	4/24/12 14:13		288728	
cis-1,2-Dichloroethene	**7200**		250	10	50	NA	4/24/12 14:13		288728	
cis-1,3-Dichloropropene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
m,p-Xylenes	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
n-Butyl Acetate	130	U	130	5.3	25	NA	4/24/12 13:07		288728	
o-Xylene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	
trans-1,2-Dichloroethene	**200**		130	5.0	25	NA	4/24/12 13:07		288728	
trans-1,3-Dichloropropene	130	U	130	5.0	25	NA	4/24/12 13:07		288728	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	4/24/12 13:07	
Dibromofluoromethane	104	89-119	4/24/12 13:07	
Toluene-d8	99	87-121	4/24/12 13:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1202512
Project:	ESTCP PED LC34 FO552B (4/19/12)	**Date Collected:**	4/19/12 1141
Sample Matrix:	Water	**Date Received:**	4/20/12
		Date Analyzed:	4/24/12 13:40
Sample Name:	LC34-RW0008-052.0-20120419	**Units:**	µg/L
Lab Code:	R1202512-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	288728
Data File Name:	J:\ACQUDATA\msvoa12\Data\042412\U8141.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**670**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	100	U	100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	**6.7**	I	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1202512
Project:	ESTCP PED LC34 FO552B (4/19/12)	**Date Collected:**	4/19/12 1141
Sample Matrix:	Water	**Date Received:**	4/20/12
		Date Analyzed:	4/24/12 13:40
Sample Name:	LC34-RW0008-052.0-20120419	**Units:**	µg/L
Lab Code:	R1202512-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	288728
Data File Name:	J:\ACQUDATA\msvoa12\Data\042412\U8141.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**290**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**1100**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**870**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**17**	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	4/24/12 13:40	
Dibromofluoromethane	101	89-119	4/24/12 13:40	
Toluene-d8	98	87-121	4/24/12 13:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1202512
Project:	ESTCP PED LC34 FO552B (4/19/12)	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	4/24/12 12:34
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1204146-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	288728
Data File Name:	J:\ACQUDATA\msvoa12\Data\042412\U8139.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	**0.46**	I	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1202512
Project:	ESTCP PED LC34 FO552B (4/19/12)	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	4/24/12 12:34
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1204146-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	288728
Data File Name:	J:\ACQUDATA\msvoa12\Data\042412\U8139.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	4/24/12 12:34	
Dibromofluoromethane	100	89-119	4/24/12 12:34	
Toluene-d8	98	87-121	4/24/12 12:34	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO552B (4/19/12)
Sample Matrix: Water

Service Request: R1202512
Date Analyzed: 4/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 288728

Lab Control Sample
RQ1204146-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.6	20.0	83	72 - 128
1,1,2,2-Tetrachloroethane	19.7	20.0	98	72 - 131
1,1,2-Trichloroethane	20.1	20.0	101	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	14.4	20.0	72	68 - 136
1,1-Dichloroethane (1,1-DCA)	16.9	20.0	85	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.0	20.0	85	72 - 129
1,2,4-Trichlorobenzene	19.8	20.0	99	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	21.4	20.0	107	62 - 131
1,2-Dibromoethane	19.9	20.0	99	78 - 125
1,2-Dichlorobenzene	19.3	20.0	96	79 - 124
1,2-Dichloroethane	20.1	20.0	101	73 - 127
1,2-Dichloropropane	17.6	20.0	88	80 - 123
1,3-Dichlorobenzene	18.8	20.0	94	78 - 124
1,4-Dichlorobenzene	18.5	20.0	92	78 - 123
n-Butanol	895	1010	89	70 - 130
2-Butanone (MEK)	15.4	20.0	77	60 - 133
2-Hexanone	18.6	20.0	93	61 - 131
4-Methyl-2-pentanone	18.5	20.0	92	61 - 132
Acetone	17.2	20.0	86	54 - 139
Benzene	17.3	20.0	86	78 - 121
Bromodichloromethane	19.8	20.0	99	80 - 125
Bromoform	22.3	20.0	111	68 - 130
Bromomethane	16.1	20.0	80	57 - 144
Carbon Disulfide	18.9	20.0	94	52 - 140
Carbon Tetrachloride	19.1	20.0	96	68 - 133
Chlorobenzene	18.5	20.0	92	80 - 121
Chloroethane	17.9	20.0	90	71 - 130
Chloroform	18.2	20.0	91	78 - 125
Chloromethane	17.0	20.0	85	61 - 138
Cyclohexane	19.3	20.0	96	57 - 126
Dibromochloromethane	22.0	20.0	110	78 - 133
Dichlorodifluoromethane (CFC 12)	18.8	20.0	94	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO552B (4/19/12)
Sample Matrix: Water

Service Request: R1202512
Date Analyzed: 4/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 288728

Lab Control Sample
RQ1204146-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	17.5	20.0	88	75 - 125
Ethylbenzene	17.3	20.0	87	78 - 123
Isopropylbenzene (Cumene)	17.8	20.0	89	73 - 133
Methyl Acetate	18.9	20.0	94	57 - 157
Methyl tert-Butyl Ether	23.1	20.0	116	75 - 126
Methylcyclohexane	20.0	20.0	100	61 - 125
Styrene	18.9	20.0	95	80 - 132
Tetrachloroethene (PCE)	17.4	20.0	87	72 - 131
Toluene	17.7	20.0	89	78 - 122
Trichloroethene (TCE)	18.0	20.0	90	74 - 127
Trichlorofluoromethane (CFC 11)	17.0	20.0	85	69 - 141
Vinyl Chloride	17.1	20.0	85	72 - 138
cis-1,2-Dichloroethene	18.0	20.0	90	78 - 122
cis-1,3-Dichloropropene	18.6	20.0	93	77 - 125
m,p-Xylenes	35.3	40.0	88	79 - 126
n-Butyl Acetate	20.5	20.0	102	31 - 144
o-Xylene	18.4	20.0	92	77 - 118
trans-1,2-Dichloroethene	16.6	20.0	83	75 - 121
trans-1,3-Dichloropropene	19.7	20.0	99	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** FO0552B

Project Manager: Rebecca Daprato **Company:** Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Ste. 3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5813

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20120419	4/19/2012	1112	-001	W	3	3									
LC34-RW0008-052.0-20120419	4/19/2012	1141	-002	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: FO0552B

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1202512 5

GeoSyntec Consultants
ESTCP PED LC34 FO552B (4/19/12)

RELINQUISHED BY:
Signature: [signature]
Printed Name: J. BARTLETT
Firm: GEOSYNTEC CONSULTANTS
Date/Time: 4/19/12 - 1630

RECEIVED BY:
Signature: _____
Printed Name: KEDEX
Firm: _____
Date/Time: 4/19/12 - 1630

RELINQUISHED BY:
Signature: _____
Printed Name: _____
Firm: _____
Date/Time: _____

RECEIVED BY:
Signature: [signature]
Printed Name: Daniel Ward
Firm: ALS
Date/Time: 4/20/12 / 1025

Cooler Receipt and Preservation Check Form

Project/Client GeoSyntec Folder Number R120252

Cooler received on 4/20/12 by: DW COURIER: ALS UPS ~~FEDEX~~ VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	~~YES~~	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	~~YES~~	NO			
3.	Did all bottles arrive in good condition (unbroken)?	~~YES~~	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	~~NO~~	N/A		
5.	Were ~~Ice~~ or Ice packs present?	~~YES~~	NO			
6.	Where did the bottles originate?	ALS/~~ROC~~, CLIENT				
7.	Temperature of cooler(s) upon receipt:	7.1°C				
	Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
	If No, Explain Below	~~NO~~	No	No	No	No

Date/Time Temperatures Taken: 4/20/12 / 1035

Thermometer ID: IR GUN#3 / IR ~~GUN#4~~ Reading From: Temp Blank / ~~Sample Bottle~~

If out of Temperature, note packing/ice condition &Client Approval to Run Samples:

All Samples held in storage location 4/20/12 by DW on 4/20/12 at 1040

5035 samples placed in storage location ____ by ____ on ____ at ____

PC Secondary Review: CE 4/20/12

Cooler Breakdown: Date: 4/20/12 Time: 1149 by: AWH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		N/A

Explain any discrepancies: ____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
<4	$NaHSO_4$				
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: ____

Bottle lot numbers: 1-286-002

Other Comments: ____

PC Secondary Review: VB 5/7/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

June 05, 2012 Service Request No: R1203201

Mr. Cory Repta
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, ON N1G 5G3
CANADA

Laboratory Results for: ESTCP PED LC34 FO0552B 5/17/12

Dear Mr. Repta:

Enclosed are the results of the sample(s) submitted to our laboratory on May 18, 2012. For your reference, these analyses have been assigned our service request number **R1203201**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at KBunker@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

Client:	Geosyntec Consultants	**Service Request No.:**	R1203201
Project:	ESTCP PED LC34/ FO552B (5/17/12)	**Date Received:**	5/18/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 5/17/12 and were received for analysis at Columbia Analytical Services from 5/18/12 via a national courier The samples were received at a cooler temperature of 4.1°C within the guidelines of 0-6°C. The chain of custody forms were consistent with the samples received.

Volatile Organic Compounds GC/MS

Two (2) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C.

Initial and Continuing Calibration Criteria was met for all samples except for %D which was outside the 20% limit for the following compounds: Bromoform, Chloromethane, and Dichlorodifluoromethane on the 5/21/12 run and 2-Butanone, Acetone, and Dichlorodifluoromethane on the 5/22/12 analytical run. Any hits for these compounds on the associated runs should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) recoveries were all within QC limits.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for a low level hit of 1,2,4-Trichlorobenzene, Bromomethane, Dichloromethane on the 5/22/12 (analysis 292528) blank and 1,2,4-Trichlorobenzene and Bromomethane (analysis 292718). No data was affected.

No other analytical or QC problems were encountered.

Approved by Karen Burke **Date** 6/5/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1203201

Lab ID	Client ID
R1203201-001	LC34-RW0007-038.5-20120517
R1203201-002	LC34-RW0008-052.0-20120517

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	5/17/12 0854
Sample Matrix:	Water	**Date Received:**	5/18/12
Sample Name:	LC34-RW0007-038.5-20120517	**Units:**	µg/L
Lab Code:	R1203201-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	12	50	NA	5/22/12 03:01		292528	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	5/22/12 03:01		292528	
1,1,2-Trichloroethane	250	U	250	12	50	NA	5/22/12 03:01		292528	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		500	31	100	NA	5/22/12 13:28		292718	
1,1-Dichloroethane (1,1-DCA)	250	U	250	10	50	NA	5/22/12 03:01		292528	
1,1-Dichloroethene (1,1-DCE)	250	U	250	15	50	NA	5/22/12 03:01		292528	
1,2,4-Trichlorobenzene	250	U	250	13	50	NA	5/22/12 03:01		292528	
1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	50	NA	5/22/12 03:01		292528	
1,2-Dibromoethane	250	U	250	10	50	NA	5/22/12 03:01		292528	
1,2-Dichlorobenzene	250	U	250	10	50	NA	5/22/12 03:01		292528	
1,2-Dichloroethane	250	U	250	10	50	NA	5/22/12 03:01		292528	
1,2-Dichloropropane	250	U	250	15	50	NA	5/22/12 03:01		292528	
1,3-Dichlorobenzene	250	U	250	10	50	NA	5/22/12 03:01		292528	
1,4-Dichlorobenzene	250	U	250	10	50	NA	5/22/12 03:01		292528	
n-Butanol	13000	U	13000	530	50	NA	5/22/12 03:01		292528	
2-Butanone (MEK)	500	U	500	26	50	NA	5/22/12 03:01		292528	
2-Hexanone	500	U	500	18	50	NA	5/22/12 03:01		292528	
4-Methyl-2-pentanone	500	U	500	14	50	NA	5/22/12 03:01		292528	
Acetone	500	U	500	49	50	NA	5/22/12 03:01		292528	
Benzene	250	U	250	11	50	NA	5/22/12 03:01		292528	
Bromodichloromethane	250	U	250	10	50	NA	5/22/12 03:01		292528	
Bromoform	250	U	250	14	50	NA	5/22/12 03:01		292528	
Bromomethane	**29**	I	250	16	50	NA	5/22/12 03:01		292528	
Carbon Disulfide	**33**	I	500	10	50	NA	5/22/12 03:01		292528	
Carbon Tetrachloride	250	U	250	14	50	NA	5/22/12 03:01		292528	
Chlorobenzene	250	U	250	10	50	NA	5/22/12 03:01		292528	
Chloroethane	250	U	250	16	50	NA	5/22/12 03:01		292528	
Chloroform	250	U	250	11	50	NA	5/22/12 03:01		292528	
Chloromethane	250	U	250	12	50	NA	5/22/12 03:01		292528	
Cyclohexane	500	U	500	12	50	NA	5/22/12 03:01		292528	
Dibromochloromethane	250	U	250	10	50	NA	5/22/12 03:01		292528	
Dichlorodifluoromethane (CFC 12)	250	U	250	29	50	NA	5/22/12 03:01		292528	
Dichloromethane	250	U	250	11	50	NA	5/22/12 03:01		292528	
Ethylbenzene	250	U	250	10	50	NA	5/22/12 03:01		292528	
Isopropylbenzene (Cumene)	250	U	250	10	50	NA	5/22/12 03:01		292528	
Methyl Acetate	500	U	500	12	50	NA	5/22/12 03:01		292528	

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	5/17/12 0854
Sample Matrix:	Water	**Date Received:**	5/18/12
Sample Name:	LC34-RW0007-038.5-20120517	**Units:**	µg/L
Lab Code:	R1203201-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	250	U	250	10	50	NA	5/22/12 03:01		292528	
Methylcyclohexane	500	U	500	13	50	NA	5/22/12 03:01		292528	
Styrene	250	U	250	10	50	NA	5/22/12 03:01		292528	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	5/22/12 03:01		292528	
Toluene	250	U	250	10	50	NA	5/22/12 03:01		292528	
Trichloroethene (TCE)	**520**		250	12	50	NA	5/22/12 03:01		292528	
Trichlorofluoromethane (CFC 11)	250	U	250	10	50	NA	5/22/12 03:01		292528	
Vinyl Chloride	**8700**		250	12	50	NA	5/22/12 03:01		292528	
cis-1,2-Dichloroethene	**6000**		250	10	50	NA	5/22/12 03:01		292528	
cis-1,3-Dichloropropene	250	U	250	10	50	NA	5/22/12 03:01		292528	
m,p-Xylenes	250	U	250	10	50	NA	5/22/12 03:01		292528	
n-Butyl Acetate	250	U	250	11	50	NA	5/22/12 03:01		292528	
o-Xylene	250	U	250	10	50	NA	5/22/12 03:01		292528	
trans-1,2-Dichloroethene	**190**	I	250	10	50	NA	5/22/12 03:01		292528	
trans-1,3-Dichloropropene	250	U	250	10	50	NA	5/22/12 03:01		292528	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85-122	5/22/12 03:01	
Dibromofluoromethane	94	89-119	5/22/12 03:01	
Toluene-d8	96	87-121	5/22/12 03:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	5/17/12 0916
Sample Matrix:	Water	**Date Received:**	5/18/12
		Date Analyzed:	5/22/12 03:34
Sample Name:	LC34-RW0008-052.0-20120517	**Units:**	µg/L
Lab Code:	R1203201-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	292528
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\052112\U8971.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**1100**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	100	U	100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	**6.1**	I	50	3.1	
75-15-0	Carbon Disulfide	**12**	I	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	**2.9**	I	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	5/17/12 0916
Sample Matrix:	Water	**Date Received:**	5/18/12
		Date Analyzed:	5/22/12 03:34
Sample Name:	LC34-RW0008-052.0-20120517	**Units:**	µg/L
Lab Code:	R1203201-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	292528
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\052112\U8971.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**300**		50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**870**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1300**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**18**	I	50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	5/22/12 03:34	
Dibromofluoromethane	96	89-119	5/22/12 03:34	
Toluene-d8	99	87-121	5/22/12 03:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/22/12 00:16
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1205582-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	292528
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\052112\U8965.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	**0.28**	I	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	**0.88**	I	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	**0.22**	I	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/22/12 00:16
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1205582-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	292528
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\052112\U8965.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	5/22/12 00:16	
Dibromofluoromethane	96	89-119	5/22/12 00:16	
Toluene-d8	96	87-121	5/22/12 00:16	

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/22/12 12:55
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1205892-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	292718
Data File Name:	J:\ACQUDATA\msvoa12\Data\052212\U8988.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	**0.32**	I	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	**0.81**	I	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1203201
Project:	ESTCP PED LC34 FO0552B 5/17/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/22/12 12:55
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1205892-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	292718
Data File Name:	J:\ACQUDATA\msvoa12\Data\052212\U8988.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85-122	5/22/12 12:55	
Dibromofluoromethane	95	89-119	5/22/12 12:55	
Toluene-d8	93	87-121	5/22/12 12:55	

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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 5/17/12
Sample Matrix: Water

Service Request: R1203201
Date Analyzed: 5/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 292528

Lab Control Sample
RQ1205582-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.7	20.0	103	72 - 128
1,1,2,2-Tetrachloroethane	20.6	20.0	103	72 - 131
1,1,2-Trichloroethane	19.1	20.0	96	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.3	20.0	96	68 - 136
1,1-Dichloroethane (1,1-DCA)	20.7	20.0	103	76 - 124
1,1-Dichloroethene (1,1-DCE)	21.5	20.0	107	72 - 129
1,2,4-Trichlorobenzene	20.5	20.0	103	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	22.1	20.0	111	62 - 131
1,2-Dibromoethane	20.5	20.0	103	78 - 125
1,2-Dichlorobenzene	20.3	20.0	101	79 - 124
1,2-Dichloroethane	19.5	20.0	98	73 - 127
1,2-Dichloropropane	18.9	20.0	95	80 - 123
1,3-Dichlorobenzene	19.9	20.0	100	78 - 124
1,4-Dichlorobenzene	20.4	20.0	102	78 - 123
n-Butanol	927	1010	92	70 - 130
2-Butanone (MEK)	17.1	20.0	85	60 - 133
2-Hexanone	19.5	20.0	98	61 - 131
4-Methyl-2-pentanone	18.3	20.0	91	61 - 132
Acetone	17.5	20.0	88	54 - 139
Benzene	20.0	20.0	100	78 - 121
Bromodichloromethane	20.0	20.0	100	80 - 125
Bromoform	23.1	20.0	116	68 - 130
Bromomethane	19.2	20.0	96	57 - 144
Carbon Disulfide	21.6	20.0	108	52 - 140
Carbon Tetrachloride	20.9	20.0	104	68 - 133
Chlorobenzene	19.6	20.0	98	80 - 121
Chloroethane	19.8	20.0	99	71 - 130
Chloroform	21.2	20.0	106	78 - 125
Chloromethane	17.7	20.0	89	61 - 138
Cyclohexane	15.4	20.0	77	57 - 126
Dibromochloromethane	20.3	20.0	101	78 - 133
Dichlorodifluoromethane (CFC 12)	19.8	20.0	99	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 5/17/12
Sample Matrix: Water

Service Request: R1203201
Date Analyzed: 5/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 292528

Analyte Name	Lab Control Sample RQ1205582-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.7	20.0	98	75 - 125
Ethylbenzene	20.1	20.0	100	78 - 123
Isopropylbenzene (Cumene)	21.3	20.0	106	73 - 133
Methyl Acetate	17.8	20.0	89	57 - 157
Methyl tert-Butyl Ether	18.3	20.0	92	75 - 126
Methylcyclohexane	16.1	20.0	81	61 - 125
Styrene	20.5	20.0	102	80 - 132
Tetrachloroethene (PCE)	18.8	20.0	94	72 - 131
Toluene	19.8	20.0	99	78 - 122
Trichloroethene (TCE)	20.9	20.0	104	74 - 127
Trichlorofluoromethane (CFC 11)	19.7	20.0	98	69 - 141
Vinyl Chloride	18.9	20.0	95	72 - 138
cis-1,2-Dichloroethene	21.0	20.0	105	78 - 122
cis-1,3-Dichloropropene	18.4	20.0	92	77 - 125
m,p-Xylenes	40.2	40.0	100	79 - 126
n-Butyl Acetate	20.9	20.0	105	31 - 144
o-Xylene	20.3	20.0	101	77 - 118
trans-1,2-Dichloroethene	20.8	20.0	104	75 - 121
trans-1,3-Dichloropropene	18.7	20.0	93	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 5/17/12
Sample Matrix: Water

Service Request: R1203201
Date Analyzed: 5/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 292718

Analyte Name	Lab Control Sample RQ1205892-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.2	20.0	101	72 - 128
1,1,2,2-Tetrachloroethane	21.1	20.0	105	72 - 131
1,1,2-Trichloroethane	17.5	20.0	87	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	18.9	20.0	95	68 - 136
1,1-Dichloroethane (1,1-DCA)	19.1	20.0	95	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.7	20.0	104	72 - 129
1,2,4-Trichlorobenzene	23.7	20.0	118	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.4	20.0	92	62 - 131
1,2-Dibromoethane	19.7	20.0	98	78 - 125
1,2-Dichlorobenzene	20.1	20.0	100	79 - 124
1,2-Dichloroethane	19.7	20.0	99	73 - 127
1,2-Dichloropropane	18.4	20.0	92	80 - 123
1,3-Dichlorobenzene	20.3	20.0	102	78 - 124
1,4-Dichlorobenzene	20.2	20.0	101	78 - 123
n-Butanol	786	1010	78	70 - 130
2-Butanone (MEK)	15.0	20.0	75	60 - 133
2-Hexanone	16.6	20.0	83	61 - 131
4-Methyl-2-pentanone	17.3	20.0	86	61 - 132
Acetone	15.5	20.0	78	54 - 139
Benzene	19.9	20.0	100	78 - 121
Bromodichloromethane	19.9	20.0	100	80 - 125
Bromoform	22.5	20.0	112	68 - 130
Bromomethane	20.5	20.0	102	57 - 144
Carbon Disulfide	22.5	20.0	113	52 - 140
Carbon Tetrachloride	21.2	20.0	106	68 - 133
Chlorobenzene	19.4	20.0	97	80 - 121
Chloroethane	19.6	20.0	98	71 - 130
Chloroform	20.0	20.0	100	78 - 125
Chloromethane	17.3	20.0	87	61 - 138
Cyclohexane	17.7	20.0	88	57 - 126
Dibromochloromethane	19.8	20.0	99	78 - 133
Dichlorodifluoromethane (CFC 12)	20.8	20.0	104	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 5/17/12
Sample Matrix: Water

Service Request: R1203201
Date Analyzed: 5/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 292718

Lab Control Sample
RQ1205892-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	18.8	20.0	94	75 - 125
Ethylbenzene	19.6	20.0	98	78 - 123
Isopropylbenzene (Cumene)	20.9	20.0	104	73 - 133
Methyl Acetate	17.3	20.0	87	57 - 157
Methyl tert-Butyl Ether	17.3	20.0	87	75 - 126
Methylcyclohexane	18.7	20.0	93	61 - 125
Styrene	19.6	20.0	98	80 - 132
Tetrachloroethene (PCE)	17.6	20.0	88	72 - 131
Toluene	19.9	20.0	100	78 - 122
Trichloroethene (TCE)	19.2	20.0	96	74 - 127
Trichlorofluoromethane (CFC 11)	20.7	20.0	103	69 - 141
Vinyl Chloride	19.2	20.0	96	72 - 138
cis-1,2-Dichloroethene	20.4	20.0	102	78 - 122
cis-1,3-Dichloropropene	18.3	20.0	91	77 - 125
m,p-Xylenes	39.4	40.0	98	79 - 126
n-Butyl Acetate	19.0	20.0	95	31 - 144
o-Xylene	19.4	20.0	97	77 - 118
trans-1,2-Dichloroethene	19.7	20.0	99	75 - 121
trans-1,3-Dichloropropene	18.4	20.0	92	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** FO0552B

Project Manager: Rebecca Daprato **Company:** Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Ste. 3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	VFAs (300)	Bromide and Iodide with Anions (300.0)	TOC (9060A)	Sulfide (9060A)	MEEs (RSK 175)	Alkalinity (310.1)	Dissolved Metals (6010B)		REMARKS
LC34-RW0007-038.5-20120517	5/17/2012	854	-001	W	3	3									
LC34-RW0008-052.0-20120517	5/17/2012	916	-002	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: FO0552B

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1203201 5
GeoSyntec Consultants
ESTCP PED LC34 FO0552B 5/17/12

RELINQUISHED BY:
Signature:
Printed Name: J. BARTLETT
Firm: GEOSYNTEC
Date/Time: 5/17/12 - 1630

RECEIVED BY:
Signature:
Printed Name: FEDEX
Firm:
Date/Time: 5/17/12 - 1620

RELINQUISHED BY:
Signature:
Printed Name:
Firm:
Date/Time:

RECEIVED BY:
Signature: Amy Hentschke
Printed Name: Amy Hentschke
Firm: ALS
Date/Time: 5/18/12 0955

Cooler Receipt and Preservation Check Form

Project/Client GeoSyntec Folder Number R1203201

Cooler received on 5/18/12 by: AHH **COURIER:** ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?		ALS/ROC,	(CLIENT)		
7.	Temperature of cooler(s) upon receipt:	4.1°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 5/18/12 1005

Thermometer ID: IR GUN#3 (IR GUN#4) Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: _____

All Samples held in storage location R-002 by AHH on 5/18/12 at 1011

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: KB 5/18/12

Cooler Breakdown: Date: 5/18/12 Time: 1954 by: AHH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
<4	$NaHSO_4$				
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: Client

Other Comments:

PC Secondary Review: KB 6/5/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

July 13, 2012 Service Request No: R1204087

Dr. Rebecca Daprato
GeoSyntec Consultants
2692 Madison Rd
Suite N1 #223
Cincinatti, OH 45208

Laboratory Results for: ESTCP PED LC34 FO0552B 6/26/12

Dear Dr. Daprato:

Enclosed are the results of the sample(s) submitted to our laboratory on June 27, 2012. For your reference, these analyses have been assigned our service request number **R1204087**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Karen.Bunker@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

Client:	Geosyntec Consultants	**Service Request No.:**	R1204087
Project:	ESTCP PED LC34/ FO552B (6/26/12)	**Date Received:**	6/27/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Twenty-four (24) water samples were collected by the client on 6/26/12 and were received for analysis at Columbia Analytical Services on 6/27/12 via a national courier The samples were received at a cooler temperature range of 2.0-2.6°C within the guidelines of 0-6°C. The chain of custody forms were consistent with the samples received. The

Volatile Organic Compounds GC/MS

Twenty-four (24) water samples were analyzed for a client specific list of Volatile Organics by GC/MS Method 8260C. Eighteen (18) samples were also analyzed for GC Method RSK-175.

The minimum response factor for Tetrachloroethene was not met in the daily CCV on 6/29/12 (analysis lot #s 2981036 and 298544) runs. The ICAL's were acceptable. The data has been considered acceptable since the MRL's have been verified by the low standard in the calibration.

Continuing Calibration Criteria was met for all samples except for %D which was outside the 20% limit for the following compounds:

1,2-Dibromo-3-chloropropane (23.3%) and Bromoform (30.1%) on the 6/29/12 run,

1,1,2,2-Tetrachloroethane (21.3%), 1,2-Dibromo-3-chloropropane (32.4%), n-Butanol (22.1%), 2-Hexanone (21.9%), Bromoform (36.1%), Dichlorodifluoromethane (23.0%), and n-Butyl Acetate (24.5%) on the 6/30/12 run, and

Acetone (-22.4%), Carbon Disulfide (26.4%), and Dichlorodifluoromethane (23.6%) on the 7/2/12 run.

Any hits for these compounds on the associated runs should be considered as estimated, however only the compound N-Butanol was detected in location -009 and this sample was repeated at a dilution on 7/2/12.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LCSD) recoveries were all within QC limits except for Bromoform (LCS only) and 1,1,2,2-Tetrachloroethane (LCS only) on the 6/29/12, and Carbon Disulfide on the 7/2/12 run.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for a low level hit of 1,24-Trichlorobenzene on the 6/29/12, 6/30/12, and 7/2/12 blanks. Any affected data has been flagged as "B".

No other analytical or QC problems were encountered.

Approved by Karen Burke **Date** 7/13/12

Eighteen (18) water samples were analyzed for TOC analysis by method 9060A.

All initial and continuing calibration criteria were met.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within acceptance limits.

All Method Blanks were free from contamination.

All samples were analyzed within the proper holding time.

No problems were encountered during the analysis of these samples.

Approved by Karen Beard **Date** 7/13/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1204087

Lab ID	Client ID
R1204087-001	LC34-IW0070D-040.5-20120626
R1204087-002	LC34-IW0070D1-070.0-20120626
R1204087-003	LC34-IW0071D-040.5-20120626
R1204087-004	LC34-IW0071D1-070.0-20120626
R1204087-005	LC34-BW0002C-038.5-20120626
R1204087-006	LC34-BW0002D-045.5-20120626
R1204087-007	LC34-BW0002E-052.5-20120626
R1204087-008	LC34-BW0002F-059.5-20120626
R1204087-009	LC34-IW0076-075.0-20120626
R1204087-010	LC34-IW0002I-027.5-20120626
R1204087-011	LC34-IW0002D-037.5-20120626
R1204087-012	LC34-IW0002D1-052.5-20120626
R1204087-013	LC34-IW0067D-040.5-20120626
R1204087-014	LC34-IW0067D1-068.0-20120626
R1204087-015	LC34-RW0007-038.5-20120626
R1204087-016	LC34-RW0008-052.0-20120626
R1204087-017	LC34-BW0001A-024.5-20120626
R1204087-018	LC34-BW0001B-031.5-20120626
R1204087-019	LC34-BW0001C-038.5-20120626
R1204087-020	LC34-BW0001D-045.5-20120626
R1204087-021	LC34-BW0001E-052.5-20120626
R1204087-022	LC34-BW0001F-059.5-20120626
R1204087-023	LC34-BW0002A-024.5-20120626
R1204087-024	LC34-BW0002B-031.5-20120626

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0938
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 17:12
Sample Name:	LC34-IW0070D-040.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0021.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0938
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 17:12
Sample Name:	LC34-IW0070D-040.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0021.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	6/29/12 17:12	
Dibromofluoromethane	93	89-119	6/29/12 17:12	
Toluene-d8	94	87-121	6/29/12 17:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0908
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 17:45
Sample Name:	LC34-IW0070D1-070.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0022.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0908
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 17:45
Sample Name:	LC34-IW0070D1-070.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0022.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	6/29/12 17:45	
Dibromofluoromethane	95	89-119	6/29/12 17:45	
Toluene-d8	96	87-121	6/29/12 17:45	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1016
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 18:18
Sample Name:	LC34-IW0071D-040.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0023.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1016
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 18:18
Sample Name:	LC34-IW0071D-040.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0023.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	6/29/12 18:18	
Dibromofluoromethane	94	89-119	6/29/12 18:18	
Toluene-d8	95	87-121	6/29/12 18:18	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1041
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 18:51
Sample Name:	LC34-IW0071D1-070.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0024.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1041
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 18:51
Sample Name:	LC34-IW0071D1-070.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0024.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	85-122	6/29/12 18:51	
Dibromofluoromethane	89	89-119	6/29/12 18:51	
Toluene-d8	95	87-121	6/29/12 18:51	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1123
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002C-038.5-20120626		
Lab Code:	R1204087-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**49.1**		mg/L	4.0	4	NA	7/3/12 19:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1123
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002C-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.2	5	NA	6/29/12 19:57		298106	
1,1,2,2-Tetrachloroethane	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
1,1,2-Trichloroethane	25	U	25	1.2	5	NA	6/29/12 19:57		298106	
1,1,2-Trichloro-1,2,2-trifluoroethane	**5.7**	I	25	1.6	5	NA	6/29/12 19:57		298106	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
1,1-Dichloroethene (1,1-DCE)	**13**	I	25	1.5	5	NA	6/29/12 19:57		298106	
1,2,4-Trichlorobenzene	25	U	25	1.3	5	NA	6/29/12 19:57		298106	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	5	NA	6/29/12 19:57		298106	
1,2-Dibromoethane	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
1,2-Dichlorobenzene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
1,2-Dichloroethane	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
1,2-Dichloropropane	25	U	25	1.5	5	NA	6/29/12 19:57		298106	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
n-Butanol	1300	U	1300	53	5	NA	6/29/12 19:57		298106	
2-Butanone (MEK)	50	U	50	2.6	5	NA	6/29/12 19:57		298106	
2-Hexanone	50	U	50	1.8	5	NA	6/29/12 19:57		298106	
4-Methyl-2-pentanone	50	U	50	1.4	5	NA	6/29/12 19:57		298106	
Acetone	50	U	50	4.9	5	NA	6/29/12 19:57		298106	
Benzene	25	U	25	1.1	5	NA	6/29/12 19:57		298106	
Bromodichloromethane	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Bromoform	25	U	25	1.4	5	NA	6/29/12 19:57		298106	
Bromomethane	25	U	25	1.6	5	NA	6/29/12 19:57		298106	
Carbon Disulfide	**3.6**	I	50	1.0	5	NA	6/29/12 19:57		298106	
Carbon Tetrachloride	25	U	25	1.4	5	NA	6/29/12 19:57		298106	
Chlorobenzene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Chloroethane	25	U	25	1.6	5	NA	6/29/12 19:57		298106	
Chloroform	25	U	25	1.1	5	NA	6/29/12 19:57		298106	
Chloromethane	25	U	25	1.2	5	NA	6/29/12 19:57		298106	
Cyclohexane	50	U	50	1.2	5	NA	6/29/12 19:57		298106	
Dibromochloromethane	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	5	NA	6/29/12 19:57		298106	
Dichloromethane	25	U	25	1.1	5	NA	6/29/12 19:57		298106	
Ethylbenzene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Methyl Acetate	50	U	50	1.2	5	NA	6/29/12 19:57		298106	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1123
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002C-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Methylcyclohexane	50	U	50	1.3	5	NA	6/29/12 19:57		298106	
Styrene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Tetrachloroethene (PCE)	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Toluene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Trichloroethene (TCE)	**5.7**	I	25	1.2	5	NA	6/29/12 19:57		298106	
Trichlorofluoromethane (CFC 11)	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
Vinyl Chloride	**13000**		1000	46	200	NA	7/3/12 20:09		298776	
cis-1,2-Dichloroethene	**30000**		1000	40	200	NA	7/3/12 20:09		298776	
cis-1,3-Dichloropropene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
m,p-Xylenes	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
n-Butyl Acetate	25	U	25	1.1	5	NA	6/29/12 19:57		298106	
o-Xylene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	
trans-1,2-Dichloroethene	**250**		25	1.0	5	NA	6/29/12 19:57		298106	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	6/29/12 19:57		298106	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	85-122	6/29/12 19:57	
Dibromofluoromethane	94	89-119	6/29/12 19:57	
Toluene-d8	95	87-121	6/29/12 19:57	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1123
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002C-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**65**		2.0	2	NA	6/29/12 10:28		298325	
Ethene	**430**		10	10	NA	6/29/12 10:40		298325	
Methane	**690**		20	10	NA	6/29/12 10:40		298325	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1044
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002D-045.5-20120626		
Lab Code:	R1204087-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**104**		mg/L	10	10	NA	6/29/12 21:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1044
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 20:30
Sample Name:	LC34-BW0002D-045.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0027.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	23	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	20	
79-00-5	1,1,2-Trichloroethane	500	U	500	23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**37**	I	500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	29	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	
106-93-4	1,2-Dibromoethane	500	U	500	20	
95-50-1	1,2-Dichlorobenzene	500	U	500	20	
107-06-2	1,2-Dichloroethane	500	U	500	20	
78-87-5	1,2-Dichloropropane	500	U	500	29	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1100	
78-93-3	2-Butanone (MEK)	1000	U	1000	51	
591-78-6	2-Hexanone	1000	U	1000	35	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	27	
67-64-1	Acetone	1000	U	1000	98	
71-43-2	Benzene	500	U	500	21	
75-27-4	Bromodichloromethane	500	U	500	20	
75-25-2	Bromoform	500	U	500	27	
74-83-9	Bromomethane	500	U	500	31	
75-15-0	Carbon Disulfide	**42**	I	1000	20	
56-23-5	Carbon Tetrachloride	500	U	500	27	
108-90-7	Chlorobenzene	500	U	500	20	
75-00-3	Chloroethane	500	U	500	31	
67-66-3	Chloroform	500	U	500	22	
74-87-3	Chloromethane	500	U	500	24	
110-82-7	Cyclohexane	1000	U	1000	24	
124-48-1	Dibromochloromethane	500	U	500	20	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	57	
75-09-2	Dichloromethane	500	U	500	22	
100-41-4	Ethylbenzene	500	U	500	20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1044
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 20:30
Sample Name:	LC34-BW0002D-045.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0027.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	23	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	20	
108-87-2	Methylcyclohexane	1000	U	1000	25	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	20	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	500	U	500	23	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**12000**		500	23	
156-59-2	cis-1,2-Dichloroethene	**5100**		500	20	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	20	
179601-23-1	m,p-Xylenes	500	U	500	20	
123-86-4	n-Butyl Acetate	500	U	500	21	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**110**	I	500	20	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/29/12 20:30	
Dibromofluoromethane	93	89-119	6/29/12 20:30	
Toluene-d8	94	87-121	6/29/12 20:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1044
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002D-045.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-006	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**42**		2.0	2	NA	6/29/12 10:50		298325	
Ethene	**560**		20	20	NA	6/29/12 13:02		298325	
Methane	**1400**		40	20	NA	6/29/12 13:02		298325	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1000
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002E-052.5-20120626		
Lab Code:	R1204087-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**5.3**		mg/L	1.0	1	NA	6/29/12 22:13	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1000
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 19:24
Sample Name:	LC34-BW0002E-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0025.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.49**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1000
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 19:24
Sample Name:	LC34-BW0002E-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0025.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**15**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**0.71**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.75**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/29/12 19:24	
Dibromofluoromethane	93	89-119	6/29/12 19:24	
Toluene-d8	94	87-121	6/29/12 19:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1000
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002E-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**3.3**		1.0	1	NA	6/29/12 11:14		298325	
Ethene	**160**		2.0	2	NA	6/29/12 11:24		298325	
Methane	**78**		2.0	1	NA	6/29/12 11:14		298325	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0917
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002F-059.5-20120626		
Lab Code:	R1204087-008	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.4**		mg/L	1.0	1	NA	6/29/12 23:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0917
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002F-059.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	6/30/12 02:34		298544	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	6/30/12 02:34		298544	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	6/30/12 02:34		298544	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	6/30/12 02:34		298544	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	6/30/12 02:34		298544	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	6/30/12 02:34		298544	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	6/30/12 02:34		298544	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
n-Butanol	250	U	250	11	1	NA	6/30/12 02:34		298544	
2-Butanone (MEK)	10	U	10	0.51	1	NA	6/30/12 02:34		298544	
2-Hexanone	10	U	10	0.35	1	NA	6/30/12 02:34		298544	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	6/30/12 02:34		298544	
Acetone	10	U	10	0.98	1	NA	6/30/12 02:34		298544	
Benzene	5.0	U	5.0	0.21	1	NA	6/30/12 02:34		298544	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Bromoform	5.0	U	5.0	0.27	1	NA	6/30/12 02:34		298544	
Bromomethane	5.0	U	5.0	0.31	1	NA	6/30/12 02:34		298544	
Carbon Disulfide	**1.2**	I	10	0.20	1	NA	6/30/12 02:34		298544	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	6/30/12 02:34		298544	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Chloroethane	5.0	U	5.0	0.31	1	NA	6/30/12 02:34		298544	
Chloroform	5.0	U	5.0	0.22	1	NA	6/30/12 02:34		298544	
Chloromethane	5.0	U	5.0	0.24	1	NA	6/30/12 02:34		298544	
Cyclohexane	10	U	10	0.24	1	NA	6/30/12 02:34		298544	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	6/30/12 02:34		298544	
Dichloromethane	5.0	U	5.0	0.22	1	NA	6/30/12 02:34		298544	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Methyl Acetate	10	U	10	0.23	1	NA	6/30/12 02:34		298544	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0917
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002F-059.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Methylcyclohexane	10	U	10	0.25	1	NA	6/30/12 02:34		298544	
Styrene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Toluene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	6/30/12 02:34		298544	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
Vinyl Chloride	**160**		10	0.46	2	NA	7/2/12 22:03		298588	
cis-1,2-Dichloroethene	**1.6**	I	5.0	0.20	1	NA	6/30/12 02:34		298544	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	6/30/12 02:34		298544	
o-Xylene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	
trans-1,2-Dichloroethene	**4.6**	I	5.0	0.20	1	NA	6/30/12 02:34		298544	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/30/12 02:34		298544	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/30/12 02:34	
Dibromofluoromethane	93	89-119	6/30/12 02:34	
Toluene-d8	94	87-121	6/30/12 02:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0917
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 11:34
Sample Name:	LC34-BW0002F-059.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-008	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298325
Data File Name:	star284.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**1.2**		1.0	
74-85-1	Ethene	**65**		1.0	
74-82-8	Methane	**19**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0076-075.0-20120626		
Lab Code:	R1204087-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.3**		mg/L	1.0	1	NA	6/30/12 02:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0076-075.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	6/30/12 03:07		298544	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	6/30/12 03:07		298544	
1,1,2-Trichloro-1,2,2-trifluoroethane	**660**		130	7.8	25	NA	7/3/12 00:48		298588	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
1,1-Dichloroethene (1,1-DCE)	**4.3**	I	5.0	0.29	1	NA	6/30/12 03:07		298544	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	6/30/12 03:07		298544	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	6/30/12 03:07		298544	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	6/30/12 03:07		298544	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
n-Butanol	**960**		250	11	1	NA	6/30/12 03:07		298544	
2-Butanone (MEK)	10	U	10	0.51	1	NA	6/30/12 03:07		298544	
2-Hexanone	10	U	10	0.35	1	NA	6/30/12 03:07		298544	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	6/30/12 03:07		298544	
Acetone	10	U	10	0.98	1	NA	6/30/12 03:07		298544	
Benzene	5.0	U	5.0	0.21	1	NA	6/30/12 03:07		298544	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Bromoform	5.0	U	5.0	0.27	1	NA	6/30/12 03:07		298544	
Bromomethane	5.0	U	5.0	0.31	1	NA	6/30/12 03:07		298544	
Carbon Disulfide	**3.8**	I	10	0.20	1	NA	6/30/12 03:07		298544	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	6/30/12 03:07		298544	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Chloroethane	5.0	U	5.0	0.31	1	NA	6/30/12 03:07		298544	
Chloroform	**1.4**	I	5.0	0.22	1	NA	6/30/12 03:07		298544	
Chloromethane	5.0	U	5.0	0.24	1	NA	6/30/12 03:07		298544	
Cyclohexane	10	U	10	0.24	1	NA	6/30/12 03:07		298544	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	6/30/12 03:07		298544	
Dichloromethane	**0.49**	I	5.0	0.22	1	NA	6/30/12 03:07		298544	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Methyl Acetate	10	U	10	0.23	1	NA	6/30/12 03:07		298544	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0076-075.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Methylcyclohexane	10	U	10	0.25	1	NA	6/30/12 03:07		298544	
Styrene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Toluene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Trichloroethene (TCE)	**2.7**	I	5.0	0.23	1	NA	6/30/12 03:07		298544	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
Vinyl Chloride	**170**		5.0	0.23	1	NA	6/30/12 03:07		298544	
cis-1,2-Dichloroethene	**5000**		130	5.0	25	NA	7/3/12 00:48		298588	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	6/30/12 03:07		298544	
o-Xylene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	
trans-1,2-Dichloroethene	**81**		5.0	0.20	1	NA	6/30/12 03:07		298544	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	6/30/12 03:07		298544	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/30/12 03:07	
Dibromofluoromethane	94	89-119	6/30/12 03:07	
Toluene-d8	95	87-121	6/30/12 03:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 12:52
Sample Name:	LC34-IW0076-075.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-009	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298325
Data File Name:	star286.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	10	U	10	
74-85-1	Ethene	10	U	10	
74-82-8	Methane	980		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1414
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0002I-027.5-20120626		
Lab Code:	R1204087-010	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.0**		mg/L	1.0	1	NA	6/30/12 02:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1414
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 04:46
Sample Name:	LC34-IW0002I-027.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0042.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	1000	U	1000	46	
79-34-5	1,1,2,2-Tetrachloroethane	1000	U	1000	40	
79-00-5	1,1,2-Trichloroethane	1000	U	1000	46	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**19000**		1000	62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1000	U	1000	40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1000	U	1000	58	
120-82-1	1,2,4-Trichlorobenzene	1000	U	1000	52	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1000	U	1000	76	
106-93-4	1,2-Dibromoethane	1000	U	1000	40	
95-50-1	1,2-Dichlorobenzene	1000	U	1000	40	
107-06-2	1,2-Dichloroethane	1000	U	1000	40	
78-87-5	1,2-Dichloropropane	1000	U	1000	57	
541-73-1	1,3-Dichlorobenzene	1000	U	1000	40	
106-46-7	1,4-Dichlorobenzene	1000	U	1000	40	
71-36-3	n-Butanol	50000	U	50000	2100	
78-93-3	2-Butanone (MEK)	2000	U	2000	110	
591-78-6	2-Hexanone	2000	U	2000	70	
108-10-1	4-Methyl-2-pentanone	2000	U	2000	54	
67-64-1	Acetone	**410**	I	2000	200	
71-43-2	Benzene	1000	U	1000	42	
75-27-4	Bromodichloromethane	1000	U	1000	40	
75-25-2	Bromoform	1000	U	1000	54	
74-83-9	Bromomethane	1000	U	1000	62	
75-15-0	Carbon Disulfide	**86**	I	2000	40	
56-23-5	Carbon Tetrachloride	1000	U	1000	54	
108-90-7	Chlorobenzene	1000	U	1000	40	
75-00-3	Chloroethane	1000	U	1000	62	
67-66-3	Chloroform	1000	U	1000	44	
74-87-3	Chloromethane	1000	U	1000	48	
110-82-7	Cyclohexane	2000	U	2000	48	
124-48-1	Dibromochloromethane	1000	U	1000	40	
75-71-8	Dichlorodifluoromethane (CFC 12)	1000	U	1000	120	
75-09-2	Dichloromethane	1000	U	1000	44	
100-41-4	Ethylbenzene	1000	U	1000	40	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1414
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 04:46
Sample Name:	LC34-IW0002I-027.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0042.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	1000	U	1000	40	
79-20-9	Methyl Acetate	2000	U	2000	46	
1634-04-4	Methyl tert-Butyl Ether	1000	U	1000	40	
108-87-2	Methylcyclohexane	2000	U	2000	50	
100-42-5	Styrene	1000	U	1000	40	
127-18-4	Tetrachloroethene (PCE)	1000	U	1000	40	
108-88-3	Toluene	1000	U	1000	40	
79-01-6	Trichloroethene (TCE)	1000	U	1000	46	
75-69-4	Trichlorofluoromethane (CFC 11)	1000	U	1000	40	
75-01-4	Vinyl Chloride	**110**	I	1000	46	
156-59-2	cis-1,2-Dichloroethene	**970**	I	1000	40	
10061-01-5	cis-1,3-Dichloropropene	1000	U	1000	40	
179601-23-1	m,p-Xylenes	1000	U	1000	40	
123-86-4	n-Butyl Acetate	1000	U	1000	42	
95-47-6	o-Xylene	1000	U	1000	40	
156-60-5	trans-1,2-Dichloroethene	**40**	I	1000	40	
10061-02-6	trans-1,3-Dichloropropene	1000	U	1000	40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/30/12 04:46	
Dibromofluoromethane	92	89-119	6/30/12 04:46	
Toluene-d8	94	87-121	6/30/12 04:46	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1414
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/29/12 13:13
Sample Name:	LC34-IW0002I-027.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-010	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298325
Data File Name:	star288.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**1.6**		1.0	
74-85-1	Ethene	**5.5**		1.0	
74-82-8	Methane	**35**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1419
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0002D-037.5-20120626		
Lab Code:	R1204087-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**22.9**		mg/L	1.0	1	NA	7/3/12 20:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1419
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/3/12 01:21
Sample Name:	LC34-IW0002D-037.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0080.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	130	U	130	5.8	
79-34-5	1,1,2,2-Tetrachloroethane	130	U	130	5.0	
79-00-5	1,1,2-Trichloroethane	130	U	130	5.8	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**120**	I	130	7.8	
75-34-3	1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	130	U	130	7.3	
120-82-1	1,2,4-Trichlorobenzene	130	U	130	6.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	
106-93-4	1,2-Dibromoethane	130	U	130	5.0	
95-50-1	1,2-Dichlorobenzene	130	U	130	5.0	
107-06-2	1,2-Dichloroethane	130	U	130	5.0	
78-87-5	1,2-Dichloropropane	130	U	130	7.1	
541-73-1	1,3-Dichlorobenzene	130	U	130	5.0	
106-46-7	1,4-Dichlorobenzene	130	U	130	5.0	
71-36-3	n-Butanol	6300	U	6300	270	
78-93-3	2-Butanone (MEK)	250	U	250	13	
591-78-6	2-Hexanone	250	U	250	8.8	
108-10-1	4-Methyl-2-pentanone	250	U	250	6.8	
67-64-1	Acetone	250	U	250	25	
71-43-2	Benzene	130	U	130	5.3	
75-27-4	Bromodichloromethane	130	U	130	5.0	
75-25-2	Bromoform	130	U	130	6.8	
74-83-9	Bromomethane	130	U	130	7.8	
75-15-0	Carbon Disulfide	**33**	I	250	5.0	
56-23-5	Carbon Tetrachloride	130	U	130	6.8	
108-90-7	Chlorobenzene	130	U	130	5.0	
75-00-3	Chloroethane	130	U	130	7.8	
67-66-3	Chloroform	130	U	130	5.5	
74-87-3	Chloromethane	130	U	130	6.0	
110-82-7	Cyclohexane	250	U	250	6.0	
124-48-1	Dibromochloromethane	130	U	130	5.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	130	U	130	15	
75-09-2	Dichloromethane	130	U	130	5.5	
100-41-4	Ethylbenzene	130	U	130	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1419
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/3/12 01:21
Sample Name:	LC34-IW0002D-037.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0080.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	130	U	130	5.0	
79-20-9	Methyl Acetate	250	U	250	5.8	
1634-04-4	Methyl tert-Butyl Ether	130	U	130	5.0	
108-87-2	Methylcyclohexane	250	U	250	6.3	
100-42-5	Styrene	130	U	130	5.0	
127-18-4	Tetrachloroethene (PCE)	130	U	130	5.0	
108-88-3	Toluene	130	U	130	5.0	
79-01-6	Trichloroethene (TCE)	**12**	I	130	5.8	
75-69-4	Trichlorofluoromethane (CFC 11)	130	U	130	5.0	
75-01-4	Vinyl Chloride	**3800**		130	5.8	
156-59-2	cis-1,2-Dichloroethene	**3400**		130	5.0	
10061-01-5	cis-1,3-Dichloropropene	130	U	130	5.0	
179601-23-1	m,p-Xylenes	130	U	130	5.0	
123-86-4	n-Butyl Acetate	130	U	130	5.3	
95-47-6	o-Xylene	130	U	130	5.0	
156-60-5	trans-1,2-Dichloroethene	**190**		130	5.0	
10061-02-6	trans-1,3-Dichloropropene	130	U	130	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	7/3/12 01:21	
Dibromofluoromethane	92	89-119	7/3/12 01:21	
Toluene-d8	95	87-121	7/3/12 01:21	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1419
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0002D-037.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-011	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**40**		10	10	NA	6/29/12 13:23		298325	
Ethene	**920**		20	20	NA	6/29/12 13:53		298325	
Methane	**970**		20	10	NA	6/29/12 13:23		298325	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0002D1-052.5-20120626		
Lab Code:	R1204087-012	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**48.9**		mg/L	4.0	4	NA	6/30/12 04:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 05:52
Sample Name:	LC34-IW0002D1-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0044.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	100	U	100	4.7	
79-34-5	1,1,2,2-Tetrachloroethane	100	U	100	4.0	
79-00-5	1,1,2-Trichloroethane	100	U	100	4.7	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**7.0**	I	100	6.2	
75-34-3	1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	100	U	100	5.8	
120-82-1	1,2,4-Trichlorobenzene	100	U	100	5.2	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	7.6	
106-93-4	1,2-Dibromoethane	100	U	100	4.0	
95-50-1	1,2-Dichlorobenzene	100	U	100	4.0	
107-06-2	1,2-Dichloroethane	100	U	100	4.0	
78-87-5	1,2-Dichloropropane	100	U	100	5.7	
541-73-1	1,3-Dichlorobenzene	100	U	100	4.0	
106-46-7	1,4-Dichlorobenzene	100	U	100	4.0	
71-36-3	n-Butanol	5000	U	5000	210	
78-93-3	2-Butanone (MEK)	200	U	200	11	
591-78-6	2-Hexanone	200	U	200	7.0	
108-10-1	4-Methyl-2-pentanone	200	U	200	5.4	
67-64-1	Acetone	200	U	200	20	
71-43-2	Benzene	100	U	100	4.2	
75-27-4	Bromodichloromethane	100	U	100	4.0	
75-25-2	Bromoform	100	U	100	5.4	
74-83-9	Bromomethane	100	U	100	6.2	
75-15-0	Carbon Disulfide	**6.6**	I	200	4.0	
56-23-5	Carbon Tetrachloride	100	U	100	5.4	
108-90-7	Chlorobenzene	100	U	100	4.0	
75-00-3	Chloroethane	100	U	100	6.2	
67-66-3	Chloroform	100	U	100	4.4	
74-87-3	Chloromethane	100	U	100	4.8	
110-82-7	Cyclohexane	200	U	200	4.8	
124-48-1	Dibromochloromethane	100	U	100	4.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	100	U	100	12	
75-09-2	Dichloromethane	100	U	100	4.4	
100-41-4	Ethylbenzene	100	U	100	4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 05:52
Sample Name:	LC34-IW0002D1-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0044.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	100	U	100	4.0	
79-20-9	Methyl Acetate	200	U	200	4.7	
1634-04-4	Methyl tert-Butyl Ether	100	U	100	4.0	
108-87-2	Methylcyclohexane	200	U	200	5.0	
100-42-5	Styrene	100	U	100	4.0	
127-18-4	Tetrachloroethene (PCE)	100	U	100	4.0	
108-88-3	Toluene	100	U	100	4.0	
79-01-6	Trichloroethene (TCE)	100	U	100	4.7	
75-69-4	Trichlorofluoromethane (CFC 11)	100	U	100	4.0	
75-01-4	Vinyl Chloride	**2000**		100	4.7	
156-59-2	cis-1,2-Dichloroethene	**9.8**	I	100	4.0	
10061-01-5	cis-1,3-Dichloropropene	100	U	100	4.0	
179601-23-1	m,p-Xylenes	100	U	100	4.0	
123-86-4	n-Butyl Acetate	100	U	100	4.2	
95-47-6	o-Xylene	100	U	100	4.0	
156-60-5	trans-1,2-Dichloroethene	**58**	I	100	4.0	
10061-02-6	trans-1,3-Dichloropropene	100	U	100	4.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	6/30/12 05:52	
Dibromofluoromethane	93	89-119	6/30/12 05:52	
Toluene-d8	94	87-121	6/30/12 05:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1333
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-IW0002D1-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-012	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**32**		5.0	5	NA	6/29/12 13:34		298325	
Ethene	**1400**		25	25	NA	6/29/12 14:09		298325	
Methane	**1300**		50	25	NA	6/29/12 14:09		298325	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1210
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 19:51
Sample Name:	LC34-IW0067D-040.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0070.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.63**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1210
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 19:51
Sample Name:	LC34-IW0067D-040.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0070.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	**0.32**	I	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**18**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**1.2**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	7/2/12 19:51	
Dibromofluoromethane	95	89-119	7/2/12 19:51	
Toluene-d8	95	87-121	7/2/12 19:51	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1139
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 20:24
Sample Name:	LC34-IW0067D1-068.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0071.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**0.27**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1139
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 20:24
Sample Name:	LC34-IW0067D1-068.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0071.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	7/2/12 20:24	
Dibromofluoromethane	95	89-119	7/2/12 20:24	
Toluene-d8	95	87-121	7/2/12 20:24	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1326
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-RW0007-038.5-20120626		
Lab Code:	R1204087-015	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**63**		mg/L	10	10	NA	6/30/12 04:52	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1326
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 06:25
Sample Name:	LC34-RW0007-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0045.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**9500**		250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	500	U	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	**27**	I	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1326
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 06:25
Sample Name:	LC34-RW0007-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0045.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**820**		250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**8100**		250	12	
156-59-2	cis-1,2-Dichloroethene	**5500**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	250	U	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**250**		250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	6/30/12 06:25	
Dibromofluoromethane	94	89-119	6/30/12 06:25	
Toluene-d8	91	87-121	6/30/12 06:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1326
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 10:33
Sample Name:	LC34-RW0007-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-015	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star298.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**41**		20	
74-85-1	Ethene	**1200**		20	
74-82-8	Methane	**1700**		40	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1416
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-RW0008-052.0-20120626		
Lab Code:	R1204087-016	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**37.1**		mg/L	4.0	4	NA	6/30/12 05:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1416
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-RW0008-052.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.2	5	NA	7/2/12 23:09		298588	
1,1,2,2-Tetrachloroethane	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
1,1,2-Trichloroethane	25	U	25	1.2	5	NA	7/2/12 23:09		298588	
1,1,2-Trichloro-1,2,2-trifluoroethane	**900**		50	3.1	10	NA	6/30/12 06:58		298544	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
1,1-Dichloroethene (1,1-DCE)	25	U	25	1.5	5	NA	7/2/12 23:09		298588	
1,2,4-Trichlorobenzene	25	U	25	1.3	5	NA	7/2/12 23:09		298588	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	5	NA	7/2/12 23:09		298588	
1,2-Dibromoethane	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
1,2-Dichlorobenzene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
1,2-Dichloroethane	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
1,2-Dichloropropane	25	U	25	1.5	5	NA	7/2/12 23:09		298588	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
n-Butanol	1300	U	1300	53	5	NA	7/2/12 23:09		298588	
2-Butanone (MEK)	50	U	50	2.6	5	NA	7/2/12 23:09		298588	
2-Hexanone	50	U	50	1.8	5	NA	7/2/12 23:09		298588	
4-Methyl-2-pentanone	50	U	50	1.4	5	NA	7/2/12 23:09		298588	
Acetone	50	U	50	4.9	5	NA	7/2/12 23:09		298588	
Benzene	25	U	25	1.1	5	NA	7/2/12 23:09		298588	
Bromodichloromethane	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Bromoform	25	U	25	1.4	5	NA	7/2/12 23:09		298588	
Bromomethane	25	U	25	1.6	5	NA	7/2/12 23:09		298588	
Carbon Disulfide	**8.7**	I	50	1.0	5	NA	7/2/12 23:09		298588	
Carbon Tetrachloride	25	U	25	1.4	5	NA	7/2/12 23:09		298588	
Chlorobenzene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Chloroethane	25	U	25	1.6	5	NA	7/2/12 23:09		298588	
Chloroform	25	U	25	1.1	5	NA	7/2/12 23:09		298588	
Chloromethane	25	U	25	1.2	5	NA	7/2/12 23:09		298588	
Cyclohexane	50	U	50	1.2	5	NA	7/2/12 23:09		298588	
Dibromochloromethane	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	5	NA	7/2/12 23:09		298588	
Dichloromethane	25	U	25	1.1	5	NA	7/2/12 23:09		298588	
Ethylbenzene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Methyl Acetate	50	U	50	1.2	5	NA	7/2/12 23:09		298588	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1416
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-RW0008-052.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Methylcyclohexane	50	U	50	1.3	5	NA	7/2/12 23:09		298588	
Styrene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Tetrachloroethene (PCE)	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Toluene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Trichloroethene (TCE)	**620**		25	1.2	5	NA	7/2/12 23:09		298588	
Trichlorofluoromethane (CFC 11)	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
Vinyl Chloride	**990**		25	1.2	5	NA	7/2/12 23:09		298588	
cis-1,2-Dichloroethene	**970**		25	1.0	5	NA	7/2/12 23:09		298588	
cis-1,3-Dichloropropene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
m,p-Xylenes	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
n-Butyl Acetate	25	U	25	1.1	5	NA	7/2/12 23:09		298588	
o-Xylene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	
trans-1,2-Dichloroethene	**21**	I	25	1.0	5	NA	7/2/12 23:09		298588	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	7/2/12 23:09		298588	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	7/2/12 23:09	
Dibromofluoromethane	95	89-119	7/2/12 23:09	
Toluene-d8	95	87-121	7/2/12 23:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1416
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 10:43
Sample Name:	LC34-RW0008-052.0-20120626	**Units:**	µg/L
Lab Code:	R1204087-016	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star299.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**23**		10	
74-85-1	Ethene	**910**		10	
74-82-8	Methane	**620**		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0906
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001A-024.5-20120626		
Lab Code:	R1204087-017	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.6**		mg/L	1.0	1	NA	6/30/12 06:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0906
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 07:31
Sample Name:	LC34-BW0001A-024.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0047.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	120	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	100	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	120	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**50000**		2500	160	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	150	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	130	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	190	
106-93-4	1,2-Dibromoethane	2500	U	2500	100	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	100	
107-06-2	1,2-Dichloroethane	2500	U	2500	100	
78-87-5	1,2-Dichloropropane	2500	U	2500	140	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	100	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	100	
71-36-3	n-Butanol	130000	U	130000	5300	
78-93-3	2-Butanone (MEK)	5000	U	5000	260	
591-78-6	2-Hexanone	5000	U	5000	180	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	140	
67-64-1	Acetone	5000	U	5000	490	
71-43-2	Benzene	2500	U	2500	110	
75-27-4	Bromodichloromethane	2500	U	2500	100	
75-25-2	Bromoform	2500	U	2500	140	
74-83-9	Bromomethane	2500	U	2500	160	
75-15-0	Carbon Disulfide	**110**	I	5000	100	
56-23-5	Carbon Tetrachloride	2500	U	2500	140	
108-90-7	Chlorobenzene	2500	U	2500	100	
75-00-3	Chloroethane	2500	U	2500	160	
67-66-3	Chloroform	2500	U	2500	110	
74-87-3	Chloromethane	2500	U	2500	120	
110-82-7	Cyclohexane	5000	U	5000	120	
124-48-1	Dibromochloromethane	2500	U	2500	100	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	280	
75-09-2	Dichloromethane	2500	U	2500	110	
100-41-4	Ethylbenzene	2500	U	2500	100	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0906
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 07:31
Sample Name:	LC34-BW0001A-024.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0047.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	100	
79-20-9	Methyl Acetate	5000	U	5000	120	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	100	
108-87-2	Methylcyclohexane	5000	U	5000	130	
100-42-5	Styrene	2500	U	2500	100	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	100	
108-88-3	Toluene	2500	U	2500	100	
79-01-6	Trichloroethene (TCE)	2500	U	2500	120	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	100	
75-01-4	Vinyl Chloride	**770**	I	2500	120	
156-59-2	cis-1,2-Dichloroethene	**6200**		2500	100	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	100	
179601-23-1	m,p-Xylenes	2500	U	2500	100	
123-86-4	n-Butyl Acetate	2500	U	2500	110	
95-47-6	o-Xylene	2500	U	2500	100	
156-60-5	trans-1,2-Dichloroethene	**220**	I	2500	100	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	100	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/30/12 07:31	
Dibromofluoromethane	94	89-119	6/30/12 07:31	
Toluene-d8	95	87-121	6/30/12 07:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0906
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 10:54
Sample Name:	LC34-BW0001A-024.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-017	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star300.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**3.2**		1.0	
74-85-1	Ethene	**25**		1.0	
74-82-8	Methane	**89**		2.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Collected: 6/26/12 0945
Date Received: 6/27/12

Sample Name: LC34-BW0001B-031.5-20120626
Lab Code: R1204087-018

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**4.9**		mg/L	1.0	1	NA	7/3/12 20:50	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Collected: 6/26/12 0945
Date Received: 6/27/12
Date Analyzed: 6/30/12 08:04

Sample Name: LC34-BW0001B-031.5-20120626
Lab Code: R1204087-018

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C
Data File Name: J:\ACQUDATA\msvoa12\Data\062912\T0048.D\

Analysis Lot: 298544
Instrument Name: R-MS-12
Dilution Factor: 1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**160000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**360**	I	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	250000	U	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	10000	U	10000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	10000	U	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0945
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 08:04
Sample Name:	LC34-BW0001B-031.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0048.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**720**	I	5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	**1500**	I	5000	230	
156-59-2	cis-1,2-Dichloroethene	**28000**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	5000	U	5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	**750**	I	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/30/12 08:04	
Dibromofluoromethane	93	89-119	6/30/12 08:04	
Toluene-d8	94	87-121	6/30/12 08:04	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 0945
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 11:04
Sample Name:	LC34-BW0001B-031.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-018	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star301.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**7.3**		1.0	
74-85-1	Ethene	**30**		1.0	
74-82-8	Methane	**70**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1035
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001C-038.5-20120626		
Lab Code:	R1204087-019	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**120**		mg/L	10	10	NA	7/3/12 21:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1035
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001C-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	58	250	NA	6/30/12 08:37		298544	
1,1,2,2-Tetrachloroethane	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
1,1,2-Trichloroethane	1300	U	1300	58	250	NA	6/30/12 08:37		298544	
1,1,2-Trichloro-1,2,2-trifluoroethane	**67000**		2500	160	500	NA	7/3/12 02:27		298588	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	73	250	NA	6/30/12 08:37		298544	
1,2,4-Trichlorobenzene	1300	U	1300	65	250	NA	6/30/12 08:37		298544	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	95	250	NA	6/30/12 08:37		298544	
1,2-Dibromoethane	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
1,2-Dichlorobenzene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
1,2-Dichloroethane	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
1,2-Dichloropropane	1300	U	1300	70	250	NA	6/30/12 08:37		298544	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
n-Butanol	63000	U	63000	2700	250	NA	6/30/12 08:37		298544	
2-Butanone (MEK)	2500	U	2500	130	250	NA	6/30/12 08:37		298544	
2-Hexanone	2500	U	2500	88	250	NA	6/30/12 08:37		298544	
4-Methyl-2-pentanone	2500	U	2500	68	250	NA	6/30/12 08:37		298544	
Acetone	2500	U	2500	250	250	NA	6/30/12 08:37		298544	
Benzene	1300	U	1300	53	250	NA	6/30/12 08:37		298544	
Bromodichloromethane	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Bromoform	1300	U	1300	68	250	NA	6/30/12 08:37		298544	
Bromomethane	1300	U	1300	78	250	NA	6/30/12 08:37		298544	
Carbon Disulfide	**78**	I	2500	50	250	NA	6/30/12 08:37		298544	
Carbon Tetrachloride	1300	U	1300	68	250	NA	6/30/12 08:37		298544	
Chlorobenzene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Chloroethane	1300	U	1300	78	250	NA	6/30/12 08:37		298544	
Chloroform	1300	U	1300	55	250	NA	6/30/12 08:37		298544	
Chloromethane	1300	U	1300	60	250	NA	6/30/12 08:37		298544	
Cyclohexane	2500	U	2500	60	250	NA	6/30/12 08:37		298544	
Dibromochloromethane	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	140	250	NA	6/30/12 08:37		298544	
Dichloromethane	1300	U	1300	55	250	NA	6/30/12 08:37		298544	
Ethylbenzene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Methyl Acetate	2500	U	2500	58	250	NA	6/30/12 08:37		298544	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1035
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001C-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Methylcyclohexane	2500	U	2500	63	250	NA	6/30/12 08:37		298544	
Styrene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Tetrachloroethene (PCE)	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Toluene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Trichloroethene (TCE)	**370**	I	1300	58	250	NA	6/30/12 08:37		298544	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
Vinyl Chloride	**3800**		1300	58	250	NA	6/30/12 08:37		298544	
cis-1,2-Dichloroethene	**22000**		1300	50	250	NA	6/30/12 08:37		298544	
cis-1,3-Dichloropropene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
m,p-Xylenes	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
n-Butyl Acetate	1300	U	1300	53	250	NA	6/30/12 08:37		298544	
o-Xylene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	
trans-1,2-Dichloroethene	**460**	I	1300	50	250	NA	6/30/12 08:37		298544	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	6/30/12 08:37		298544	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/30/12 08:37	
Dibromofluoromethane	95	89-119	6/30/12 08:37	
Toluene-d8	95	87-121	6/30/12 08:37	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1035
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001C-038.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-019	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**50**		10	10	NA	7/2/12 11:33		298512	
Ethene	**660**		10	10	NA	7/2/12 11:33		298512	
Methane	**1600**		40	20	NA	7/2/12 14:09		298512	

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Analytical Report

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1115
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001D-045.5-20120626		
Lab Code:	R1204087-020	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	99		mg/L	20	20	NA	6/30/12 08:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1115
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 09:10
Sample Name:	LC34-BW0001D-045.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0050.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5000	U	5000	230	
79-34-5	1,1,2,2-Tetrachloroethane	5000	U	5000	200	
79-00-5	1,1,2-Trichloroethane	5000	U	5000	230	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**140000**		5000	310	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5000	U	5000	200	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5000	U	5000	290	
120-82-1	1,2,4-Trichlorobenzene	5000	U	5000	260	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5000	U	5000	380	
106-93-4	1,2-Dibromoethane	5000	U	5000	200	
95-50-1	1,2-Dichlorobenzene	5000	U	5000	200	
107-06-2	1,2-Dichloroethane	5000	U	5000	200	
78-87-5	1,2-Dichloropropane	5000	U	5000	280	
541-73-1	1,3-Dichlorobenzene	5000	U	5000	200	
106-46-7	1,4-Dichlorobenzene	5000	U	5000	200	
71-36-3	n-Butanol	250000	U	250000	11000	
78-93-3	2-Butanone (MEK)	10000	U	10000	510	
591-78-6	2-Hexanone	10000	U	10000	350	
108-10-1	4-Methyl-2-pentanone	10000	U	10000	270	
67-64-1	Acetone	10000	U	10000	980	
71-43-2	Benzene	5000	U	5000	210	
75-27-4	Bromodichloromethane	5000	U	5000	200	
75-25-2	Bromoform	5000	U	5000	270	
74-83-9	Bromomethane	5000	U	5000	310	
75-15-0	Carbon Disulfide	**230**	I	10000	200	
56-23-5	Carbon Tetrachloride	5000	U	5000	270	
108-90-7	Chlorobenzene	5000	U	5000	200	
75-00-3	Chloroethane	5000	U	5000	310	
67-66-3	Chloroform	5000	U	5000	220	
74-87-3	Chloromethane	5000	U	5000	240	
110-82-7	Cyclohexane	10000	U	10000	240	
124-48-1	Dibromochloromethane	5000	U	5000	200	
75-71-8	Dichlorodifluoromethane (CFC 12)	5000	U	5000	560	
75-09-2	Dichloromethane	5000	U	5000	220	
100-41-4	Ethylbenzene	5000	U	5000	200	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1115
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	6/30/12 09:10
Sample Name:	LC34-BW0001D-045.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0050.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1000

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5000	U	5000	200	
79-20-9	Methyl Acetate	10000	U	10000	230	
1634-04-4	Methyl tert-Butyl Ether	5000	U	5000	200	
108-87-2	Methylcyclohexane	10000	U	10000	250	
100-42-5	Styrene	5000	U	5000	200	
127-18-4	Tetrachloroethene (PCE)	5000	U	5000	200	
108-88-3	Toluene	5000	U	5000	200	
79-01-6	Trichloroethene (TCE)	**64000**		5000	230	
75-69-4	Trichlorofluoromethane (CFC 11)	5000	U	5000	200	
75-01-4	Vinyl Chloride	**990**	I	5000	230	
156-59-2	cis-1,2-Dichloroethene	**7400**		5000	200	
10061-01-5	cis-1,3-Dichloropropene	5000	U	5000	200	
179601-23-1	m,p-Xylenes	5000	U	5000	200	
123-86-4	n-Butyl Acetate	5000	U	5000	210	
95-47-6	o-Xylene	5000	U	5000	200	
156-60-5	trans-1,2-Dichloroethene	5000	U	5000	200	
10061-02-6	trans-1,3-Dichloropropene	5000	U	5000	200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	6/30/12 09:10	
Dibromofluoromethane	94	89-119	6/30/12 09:10	
Toluene-d8	95	87-121	6/30/12 09:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1115
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 11:56
Sample Name:	LC34-BW0001D-045.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-020	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star303.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**89**		2.0	
74-85-1	Ethene	**25**		2.0	
74-82-8	Methane	**110**		4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1245
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001E-052.5-20120626		
Lab Code:	R1204087-021	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**21.1**		mg/L	1.0	1	NA	6/30/12 10:50	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Collected: 6/26/12 1245
Date Received: 6/27/12

Sample Name: LC34-BW0001E-052.5-20120626
Lab Code: R1204087-021

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/2/12 20:57		298588	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/2/12 20:57		298588	
1,1,2-Trichloro-1,2,2-trifluoroethane	**5.6**		5.0	0.31	1	NA	7/2/12 20:57		298588	
1,1-Dichloroethane (1,1-DCA)	**0.24**	I	5.0	0.20	1	NA	7/2/12 20:57		298588	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/2/12 20:57		298588	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	7/2/12 20:57		298588	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/2/12 20:57		298588	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/2/12 20:57		298588	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
n-Butanol	250	U	250	11	1	NA	7/2/12 20:57		298588	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/2/12 20:57		298588	
2-Hexanone	10	U	10	0.35	1	NA	7/2/12 20:57		298588	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/2/12 20:57		298588	
Acetone	**1.6**	I	10	0.98	1	NA	7/2/12 20:57		298588	
Benzene	5.0	U	5.0	0.21	1	NA	7/2/12 20:57		298588	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Bromoform	5.0	U	5.0	0.27	1	NA	7/2/12 20:57		298588	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/2/12 20:57		298588	
Carbon Disulfide	**7.6**	I	10	0.20	1	NA	7/2/12 20:57		298588	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/2/12 20:57		298588	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/2/12 20:57		298588	
Chloroform	5.0	U	5.0	0.22	1	NA	7/2/12 20:57		298588	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/2/12 20:57		298588	
Cyclohexane	10	U	10	0.24	1	NA	7/2/12 20:57		298588	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/2/12 20:57		298588	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/2/12 20:57		298588	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Methyl Acetate	10	U	10	0.23	1	NA	7/2/12 20:57		298588	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1245
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001E-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Methylcyclohexane	10	U	10	0.25	1	NA	7/2/12 20:57		298588	
Styrene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Toluene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Trichloroethene (TCE)	**0.50**	I	5.0	0.23	1	NA	7/2/12 20:57		298588	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
Vinyl Chloride	**600**		25	1.2	5	NA	7/2/12 23:42		298588	
cis-1,2-Dichloroethene	**59**		5.0	0.20	1	NA	7/2/12 20:57		298588	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/2/12 20:57		298588	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	
trans-1,2-Dichloroethene	**12**		5.0	0.20	1	NA	7/2/12 20:57		298588	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/2/12 20:57		298588	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	7/2/12 20:57	
Dibromofluoromethane	94	89-119	7/2/12 20:57	
Toluene-d8	94	87-121	7/2/12 20:57	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1245
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001E-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-021	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**13**		10	10	NA	7/2/12 12:11		298512	
Ethene	**610**		10	10	NA	7/2/12 12:11		298512	
Methane	**2200**		50	25	NA	7/2/12 14:21		298512	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1245
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 14:21
Sample Name:	LC34-BW0001E-052.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-021	**Basis:**	NA
Run Type:	Dilution		

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star312.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	25	U	25	
74-85-1	Ethene	**510**		25	
74-82-8	Methane	**2200**		50	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1213
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0001F-059.5-20120626		
Lab Code:	R1204087-022	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.9**		mg/L	1.0	1	NA	6/30/12 11:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1213
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 21:30
Sample Name:	LC34-BW0001F-059.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0073.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**0.31**	I	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**2.4**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1213
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 21:30
Sample Name:	LC34-BW0001F-059.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0073.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.2**	I	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**13**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**0.99**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	7/2/12 21:30	
Dibromofluoromethane	92	89-119	7/2/12 21:30	
Toluene-d8	94	87-121	7/2/12 21:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1213
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 13:10
Sample Name:	LC34-BW0001F-059.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-022	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star308.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	5.0	U	5.0	
74-85-1	Ethene	**56**		5.0	
74-82-8	Methane	**440**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1248
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002A-024.5-20120626		
Lab Code:	R1204087-023	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	2.7		mg/L	1.0	1	NA	7/3/12 23:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1248
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 22:36
Sample Name:	LC34-BW0002A-024.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0075.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	13	U	13	0.58	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	13	0.50	
79-00-5	1,1,2-Trichloroethane	13	U	13	0.58	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**210**		13	0.78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	13	U	13	0.50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	13	U	13	0.73	
120-82-1	1,2,4-Trichlorobenzene	13	U	13	0.65	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	0.95	
106-93-4	1,2-Dibromoethane	13	U	13	0.50	
95-50-1	1,2-Dichlorobenzene	13	U	13	0.50	
107-06-2	1,2-Dichloroethane	13	U	13	0.50	
78-87-5	1,2-Dichloropropane	13	U	13	0.71	
541-73-1	1,3-Dichlorobenzene	13	U	13	0.50	
106-46-7	1,4-Dichlorobenzene	13	U	13	0.50	
71-36-3	n-Butanol	630	U	630	27	
78-93-3	2-Butanone (MEK)	25	U	25	1.3	
591-78-6	2-Hexanone	25	U	25	0.88	
108-10-1	4-Methyl-2-pentanone	25	U	25	0.68	
67-64-1	Acetone	25	U	25	2.5	
71-43-2	Benzene	13	U	13	0.53	
75-27-4	Bromodichloromethane	13	U	13	0.50	
75-25-2	Bromoform	13	U	13	0.68	
74-83-9	Bromomethane	13	U	13	0.78	
75-15-0	Carbon Disulfide	**1.9**	I	25	0.50	
56-23-5	Carbon Tetrachloride	13	U	13	0.68	
108-90-7	Chlorobenzene	13	U	13	0.50	
75-00-3	Chloroethane	13	U	13	0.78	
67-66-3	Chloroform	13	U	13	0.55	
74-87-3	Chloromethane	13	U	13	0.60	
110-82-7	Cyclohexane	25	U	25	0.60	
124-48-1	Dibromochloromethane	13	U	13	0.50	
75-71-8	Dichlorodifluoromethane (CFC 12)	13	U	13	1.5	
75-09-2	Dichloromethane	13	U	13	0.55	
100-41-4	Ethylbenzene	13	U	13	0.50	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1248
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 22:36
Sample Name:	LC34-BW0002A-024.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-023	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0075.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	13	U	13	0.50	
79-20-9	Methyl Acetate	25	U	25	0.58	
1634-04-4	Methyl tert-Butyl Ether	13	U	13	0.50	
108-87-2	Methylcyclohexane	25	U	25	0.63	
100-42-5	Styrene	13	U	13	0.50	
127-18-4	Tetrachloroethene (PCE)	13	U	13	0.50	
108-88-3	Toluene	13	U	13	0.50	
79-01-6	Trichloroethene (TCE)	**4.7**	I	13	0.58	
75-69-4	Trichlorofluoromethane (CFC 11)	13	U	13	0.50	
75-01-4	Vinyl Chloride	**410**		13	0.58	
156-59-2	cis-1,2-Dichloroethene	**260**		13	0.50	
10061-01-5	cis-1,3-Dichloropropene	13	U	13	0.50	
179601-23-1	m,p-Xylenes	13	U	13	0.50	
123-86-4	n-Butyl Acetate	13	U	13	0.53	
95-47-6	o-Xylene	13	U	13	0.50	
156-60-5	trans-1,2-Dichloroethene	**34**		13	0.50	
10061-02-6	trans-1,3-Dichloropropene	13	U	13	0.50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	85-122	7/2/12 22:36	
Dibromofluoromethane	94	89-119	7/2/12 22:36	
Toluene-d8	95	87-121	7/2/12 22:36	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1248
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/2/12 13:37
Sample Name:	LC34-BW0002A-024.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-023	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star310.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	2.0	U	2.0	
74-85-1	Ethene	**97**		2.0	
74-82-8	Methane	**92**		4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1212
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002B-031.5-20120626		
Lab Code:	R1204087-024	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.0**		mg/L	1.0	1	NA	6/30/12 12:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1212
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/3/12 00:15
Sample Name:	LC34-BW0002B-031.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0078.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	2.4	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.0	
79-00-5	1,1,2-Trichloroethane	50	U	50	2.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**130**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	2.9	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.6	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	3.8	
106-93-4	1,2-Dibromoethane	50	U	50	2.0	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.0	
107-06-2	1,2-Dichloroethane	50	U	50	2.0	
78-87-5	1,2-Dichloropropane	50	U	50	2.9	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	110	
78-93-3	2-Butanone (MEK)	100	U	100	5.1	
591-78-6	2-Hexanone	100	U	100	3.5	
108-10-1	4-Methyl-2-pentanone	100	U	100	2.7	
67-64-1	Acetone	100	U	100	9.8	
71-43-2	Benzene	50	U	50	2.1	
75-27-4	Bromodichloromethane	50	U	50	2.0	
75-25-2	Bromoform	50	U	50	2.7	
74-83-9	Bromomethane	50	U	50	3.1	
75-15-0	Carbon Disulfide	**8.3**	I	100	2.0	
56-23-5	Carbon Tetrachloride	50	U	50	2.7	
108-90-7	Chlorobenzene	50	U	50	2.0	
75-00-3	Chloroethane	50	U	50	3.1	
67-66-3	Chloroform	50	U	50	2.2	
74-87-3	Chloromethane	50	U	50	2.4	
110-82-7	Cyclohexane	100	U	100	2.4	
124-48-1	Dibromochloromethane	50	U	50	2.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	5.7	
75-09-2	Dichloromethane	50	U	50	2.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1212
Sample Matrix:	Water	**Date Received:**	6/27/12
		Date Analyzed:	7/3/12 00:15
Sample Name:	LC34-BW0002B-031.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0078.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	2.4	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.0	
108-87-2	Methylcyclohexane	100	U	100	2.5	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	2.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**16**	I	50	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**820**		50	2.4	
156-59-2	cis-1,2-Dichloroethene	**1100**		50	2.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.0	
179601-23-1	m,p-Xylenes	50	U	50	2.0	
123-86-4	n-Butyl Acetate	50	U	50	2.1	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**67**		50	2.0	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	7/3/12 00:15	
Dibromofluoromethane	94	89-119	7/3/12 00:15	
Toluene-d8	94	87-121	7/3/12 00:15	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	6/26/12 1212
Sample Matrix:	Water	**Date Received:**	6/27/12
Sample Name:	LC34-BW0002B-031.5-20120626	**Units:**	µg/L
Lab Code:	R1204087-024	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	2.0	U	2.0	2	NA	7/2/12 14:31		298512	
Ethene	**100**		2.0	2	NA	7/2/12 14:31		298512	
Methane	**230**		8.0	4	NA	7/2/12 14:41		298512	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1204087-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	6/29/12 17:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1204087-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	6/30/12 09:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1204087-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	7/3/12 18:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/29/12 12:48
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207342-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0013.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	**0.28**	I	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/29/12 12:48
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207342-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298106
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0013.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/29/12 12:48	
Dibromofluoromethane	95	89-119	6/29/12 12:48	
Toluene-d8	94	87-121	6/29/12 12:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/30/12 02:01
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207448-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0037.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	**0.39**	I	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/30/12 02:01
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207448-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298544
Data File Name:	J:\ACQUDATA\msvoa12\Data\062912\T0037.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85-122	6/30/12 02:01	
Dibromofluoromethane	93	89-119	6/30/12 02:01	
Toluene-d8	95	87-121	6/30/12 02:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/2/12 18:42
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207463-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0068.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	**0.33**	I	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/2/12 18:42
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207463-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298588
Data File Name:	J:\ACQUDATA\msvoa12\Data\070212\T0068.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85-122	7/2/12 18:42	
Dibromofluoromethane	95	89-119	7/2/12 18:42	
Toluene-d8	96	87-121	7/2/12 18:42	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/3/12 18:53
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207523-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9143.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/3/12 18:53
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207523-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9143.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/3/12 18:53	
Dibromofluoromethane	103	89-119	7/3/12 18:53	
Toluene-d8	97	87-121	7/3/12 18:53	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/29/12 09:32
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207393-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298325
Data File Name:	star275.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204087
Project:	ESTCP PED LC34 FO0552B 6/26/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/2/12 09:42
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207439-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298512
Data File Name:	star296.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 6/29/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1204087-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	10.2	10.0	102	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 6/30/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1204087-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	10.6	10.0	106	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 7/ 3/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1204087-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	10.5	10.0	105	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 6/29/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298106

Lab Control Sample
RQ1207342-03

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
1,1,1-Trichloroethane (TCA)	18.7	20.0	94		72 - 128
1,1,2,2-Tetrachloroethane	26.6	20.0	133	*	72 - 131
1,1,2-Trichloroethane	20.9	20.0	104		80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.5	20.0	97		68 - 136
1,1-Dichloroethane (1,1-DCA)	21.1	20.0	105		76 - 124
1,1-Dichloroethene (1,1-DCE)	22.6	20.0	113		72 - 129
1,2,4-Trichlorobenzene	23.0	20.0	115		70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	26.3	20.0	131		62 - 131
1,2-Dibromoethane	22.9	20.0	114		78 - 125
1,2-Dichlorobenzene	21.4	20.0	107		79 - 124
1,2-Dichloroethane	17.7	20.0	89		73 - 127
1,2-Dichloropropane	20.3	20.0	101		80 - 123
1,3-Dichlorobenzene	21.0	20.0	105		78 - 124
1,4-Dichlorobenzene	20.8	20.0	104		78 - 123
n-Butanol	1200	1010	119		70 - 130
2-Butanone (MEK)	20.8	20.0	104		60 - 133
2-Hexanone	23.9	20.0	120		61 - 131
4-Methyl-2-pentanone	22.6	20.0	113		61 - 132
Acetone	19.7	20.0	98		54 - 139
Benzene	19.7	20.0	98		78 - 121
Bromodichloromethane	19.2	20.0	96		80 - 125
Bromoform	26.1	20.0	131	*	68 - 130
Bromomethane	17.7	20.0	88		57 - 144
Carbon Disulfide	26.0	20.0	130		52 - 140
Carbon Tetrachloride	17.8	20.0	89		68 - 133
Chlorobenzene	20.7	20.0	104		80 - 121
Chloroethane	20.1	20.0	100		71 - 130
Chloroform	20.7	20.0	104		78 - 125
Chloromethane	20.4	20.0	102		61 - 138
Cyclohexane	15.3	20.0	77		57 - 126
Dibromochloromethane	22.0	20.0	110		78 - 133
Dichlorodifluoromethane (CFC 12)	24.4	20.0	122		45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 6/29/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298106

Analyte Name	Lab Control Sample RQ1207342-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.3	20.0	106	75 - 125
Ethylbenzene	20.0	20.0	100	78 - 123
Isopropylbenzene (Cumene)	20.9	20.0	105	73 - 133
Methyl Acetate	22.7	20.0	113	57 - 157
Methyl tert-Butyl Ether	21.9	20.0	109	75 - 126
Methylcyclohexane	15.8	20.0	79	61 - 125
Styrene	20.0	20.0	100	80 - 132
Tetrachloroethene (PCE)	18.8	20.0	94	72 - 131
Toluene	19.9	20.0	99	78 - 122
Trichloroethene (TCE)	20.2	20.0	101	74 - 127
Trichlorofluoromethane (CFC 11)	19.5	20.0	98	69 - 141
Vinyl Chloride	20.9	20.0	104	72 - 138
cis-1,2-Dichloroethene	21.9	20.0	110	78 - 122
cis-1,3-Dichloropropene	19.5	20.0	98	77 - 125
m,p-Xylenes	40.4	40.0	101	79 - 126
n-Butyl Acetate	24.3	20.0	121	31 - 144
o-Xylene	19.9	20.0	100	77 - 118
trans-1,2-Dichloroethene	21.9	20.0	110	75 - 121
trans-1,3-Dichloropropene	18.8	20.0	94	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

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Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 6/30/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298544

Lab Control Sample
RQ1207448-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.0	20.0	95	72 - 128
1,1,2,2-Tetrachloroethane	24.1	20.0	121	72 - 131
1,1,2-Trichloroethane	19.3	20.0	97	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.6	20.0	103	68 - 136
1,1-Dichloroethane (1,1-DCA)	21.2	20.0	106	76 - 124
1,1-Dichloroethene (1,1-DCE)	24.4	20.0	122	72 - 129
1,2,4-Trichlorobenzene	23.4	20.0	117	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	25.1	20.0	126	62 - 131
1,2-Dibromoethane	21.9	20.0	110	78 - 125
1,2-Dichlorobenzene	20.8	20.0	104	79 - 124
1,2-Dichloroethane	17.3	20.0	86	73 - 127
1,2-Dichloropropane	20.2	20.0	101	80 - 123
1,3-Dichlorobenzene	20.5	20.0	103	78 - 124
1,4-Dichlorobenzene	20.7	20.0	103	78 - 123
n-Butanol	1080	1010	108	70 - 130
2-Butanone (MEK)	18.8	20.0	94	60 - 133
2-Hexanone	21.3	20.0	107	61 - 131
4-Methyl-2-pentanone	20.7	20.0	104	61 - 132
Acetone	20.8	20.0	104	54 - 139
Benzene	20.3	20.0	102	78 - 121
Bromodichloromethane	19.1	20.0	95	80 - 125
Bromoform	23.8	20.0	119	68 - 130
Bromomethane	18.6	20.0	93	57 - 144
Carbon Disulfide	25.9	20.0	129	52 - 140
Carbon Tetrachloride	20.1	20.0	101	68 - 133
Chlorobenzene	20.4	20.0	102	80 - 121
Chloroethane	20.7	20.0	104	71 - 130
Chloroform	20.5	20.0	103	78 - 125
Chloromethane	21.6	20.0	108	61 - 138
Cyclohexane	18.1	20.0	91	57 - 126
Dibromochloromethane	21.0	20.0	105	78 - 133
Dichlorodifluoromethane (CFC 12)	25.4	20.0	127	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 6/30/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298544

Lab Control Sample
RQ1207448-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.5	20.0	108	75 - 125
Ethylbenzene	20.6	20.0	103	78 - 123
Isopropylbenzene (Cumene)	21.7	20.0	108	73 - 133
Methyl Acetate	22.4	20.0	112	57 - 157
Methyl tert-Butyl Ether	21.6	20.0	108	75 - 126
Methylcyclohexane	18.1	20.0	90	61 - 125
Styrene	20.2	20.0	101	80 - 132
Tetrachloroethene (PCE)	20.1	20.0	101	72 - 131
Toluene	21.1	20.0	105	78 - 122
Trichloroethene (TCE)	22.1	20.0	111	74 - 127
Trichlorofluoromethane (CFC 11)	20.6	20.0	103	69 - 141
Vinyl Chloride	22.4	20.0	112	72 - 138
cis-1,2-Dichloroethene	21.7	20.0	109	78 - 122
cis-1,3-Dichloropropene	18.7	20.0	94	77 - 125
m,p-Xylenes	42.0	40.0	105	79 - 126
n-Butyl Acetate	21.7	20.0	109	31 - 144
o-Xylene	20.5	20.0	102	77 - 118
trans-1,2-Dichloroethene	22.8	20.0	114	75 - 121
trans-1,3-Dichloropropene	17.8	20.0	89	69 - 127

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 7/ 2/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298588

Analyte Name	Lab Control Sample RQ1207463-03 Result	Spike Amount	% Rec		Duplicate Lab Control Sample RQ1207463-04 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane (TCA)	20.0	20.0	100		20.0	20.0	100		72 - 128	<1	30
1,1,2,2-Tetrachloroethane	22.2	20.0	111		22.5	20.0	113		72 - 131	1	30
1,1,2-Trichloroethane	19.4	20.0	97		19.1	20.0	95		80 - 122	2	30
1,1,2-Trichloro-1,2,2-trifluoroethane	21.1	20.0	105		21.9	20.0	109		68 - 136	4	30
1,1-Dichloroethane (1,1-DCA)	22.0	20.0	110		22.4	20.0	112		76 - 124	2	30
1,1-Dichloroethene (1,1-DCE)	24.9	20.0	124		24.8	20.0	124		72 - 129	<1	30
1,2,4-Trichlorobenzene	23.3	20.0	116		21.7	20.0	109		70 - 133	7	30
1,2-Dibromo-3-chloropropane (DBCP)	21.5	20.0	108		19.9	20.0	100		62 - 131	8	30
1,2-Dibromoethane	20.6	20.0	103		20.6	20.0	103		78 - 125	<1	30
1,2-Dichlorobenzene	20.5	20.0	102		20.9	20.0	104		79 - 124	2	30
1,2-Dichloroethane	16.8	20.0	84		17.8	20.0	89		73 - 127	6	30
1,2-Dichloropropane	20.2	20.0	101		20.6	20.0	103		80 - 123	2	30
1,3-Dichlorobenzene	21.3	20.0	106		21.1	20.0	105		78 - 124	<1	30
1,4-Dichlorobenzene	21.1	20.0	105		20.6	20.0	103		78 - 123	2	30
n-Butanol	899	1010	89		876	1010	87		70 - 130	3	30
2-Butanone (MEK)	16.5	20.0	82		17.9	20.0	90		60 - 133	9	30
2-Hexanone	18.0	20.0	90		17.6	20.0	88		61 - 131	2	30
4-Methyl-2-pentanone	18.3	20.0	91		18.6	20.0	93		61 - 132	2	30
Acetone	17.1	20.0	85		18.2	20.0	91		54 - 139	6	30
Benzene	20.5	20.0	103		21.0	20.0	105		78 - 121	2	30
Bromodichloromethane	19.6	20.0	98		19.7	20.0	99		80 - 125	<1	30
Bromoform	24.0	20.0	120		23.4	20.0	117		68 - 130	3	30
Bromomethane	16.5	20.0	83		16.6	20.0	83		57 - 144	<1	30
Carbon Disulfide	29.2	20.0	146	*	29.6	20.0	148	*	52 - 140	1	30
Carbon Tetrachloride	19.7	20.0	98		21.3	20.0	107		68 - 133	8	30
Chlorobenzene	20.7	20.0	103		20.9	20.0	105		80 - 121	1	30
Chloroethane	21.6	20.0	108		23.0	20.0	115		71 - 130	7	30
Chloroform	20.9	20.0	105		21.3	20.0	107		78 - 125	2	30
Chloromethane	21.6	20.0	108		21.5	20.0	107		61 - 138	<1	30
Cyclohexane	19.1	20.0	96		19.3	20.0	96		57 - 126	<1	30
Dibromochloromethane	20.8	20.0	104		21.1	20.0	105		78 - 133	1	30
Dichlorodifluoromethane (CFC 12)	25.5	20.0	127		25.4	20.0	127		45 - 159	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 7/ 2/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298588

Analyte Name	Lab Control Sample RQ1207463-03 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1207463-04 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Dichloromethane	22.0	20.0	110	22.0	20.0	110	75 - 125	<1	30
Ethylbenzene	20.7	20.0	104	20.5	20.0	103	78 - 123	1	30
Isopropylbenzene (Cumene)	21.9	20.0	109	22.1	20.0	110	73 - 133	<1	30
Methyl Acetate	17.0	20.0	85	17.9	20.0	90	57 - 157	5	30
Methyl tert-Butyl Ether	20.1	20.0	101	20.5	20.0	103	75 - 126	2	30
Methylcyclohexane	20.1	20.0	100	20.7	20.0	103	61 - 125	3	30
Styrene	19.9	20.0	99	20.6	20.0	103	80 - 132	4	30
Tetrachloroethene (PCE)	20.6	20.0	103	20.3	20.0	101	72 - 131	2	30
Toluene	20.8	20.0	104	21.3	20.0	107	78 - 122	2	30
Trichloroethene (TCE)	21.1	20.0	106	22.5	20.0	113	74 - 127	6	30
Trichlorofluoromethane (CFC 11)	21.1	20.0	105	20.8	20.0	104	69 - 141	1	30
Vinyl Chloride	22.8	20.0	114	22.8	20.0	114	72 - 138	<1	30
cis-1,2-Dichloroethene	22.3	20.0	111	22.6	20.0	113	78 - 122	2	30
cis-1,3-Dichloropropene	18.8	20.0	94	19.2	20.0	96	77 - 125	2	30
m,p-Xylenes	41.1	40.0	103	41.6	40.0	104	79 - 126	1	30
n-Butyl Acetate	20.0	20.0	100	20.1	20.0	100	31 - 144	<1	30
o-Xylene	20.5	20.0	103	20.4	20.0	102	77 - 118	<1	30
trans-1,2-Dichloroethene	22.9	20.0	115	23.2	20.0	116	75 - 121	1	30
trans-1,3-Dichloropropene	18.1	20.0	90	18.9	20.0	94	69 - 127	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 7/ 3/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298776

Lab Control Sample
RQ1207523-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	21.4	20.0	107	72 - 128
1,1,2,2-Tetrachloroethane	19.6	20.0	98	72 - 131
1,1,2-Trichloroethane	19.5	20.0	98	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	21.0	20.0	105	68 - 136
1,1-Dichloroethane (1,1-DCA)	23.2	20.0	116	76 - 124
1,1-Dichloroethene (1,1-DCE)	23.3	20.0	117	72 - 129
1,2,4-Trichlorobenzene	18.2	20.0	91	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.2	20.0	86	62 - 131
1,2-Dibromoethane	19.3	20.0	96	78 - 125
1,2-Dichlorobenzene	19.1	20.0	96	79 - 124
1,2-Dichloroethane	22.7	20.0	113	73 - 127
1,2-Dichloropropane	21.1	20.0	106	80 - 123
1,3-Dichlorobenzene	19.8	20.0	99	78 - 124
1,4-Dichlorobenzene	20.0	20.0	100	78 - 123
n-Butanol	1120	1010	112	70 - 130
2-Butanone (MEK)	21.7	20.0	109	60 - 133
2-Hexanone	20.4	20.0	102	61 - 131
4-Methyl-2-pentanone	20.8	20.0	104	61 - 132
Acetone	21.2	20.0	106	54 - 139
Benzene	20.3	20.0	102	78 - 121
Bromodichloromethane	20.5	20.0	102	80 - 125
Bromoform	18.9	20.0	94	68 - 130
Bromomethane	20.4	20.0	102	57 - 144
Carbon Disulfide	24.7	20.0	124	52 - 140
Carbon Tetrachloride	21.2	20.0	106	68 - 133
Chlorobenzene	20.1	20.0	100	80 - 121
Chloroethane	22.2	20.0	111	71 - 130
Chloroform	22.4	20.0	112	78 - 125
Chloromethane	21.7	20.0	108	61 - 138
Cyclohexane	21.2	20.0	106	57 - 126
Dibromochloromethane	19.5	20.0	97	78 - 133
Dichlorodifluoromethane (CFC 12)	21.7	20.0	108	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 7/ 3/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298776

Analyte Name	Lab Control Sample RQ1207523-03 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	22.1	20.0	111	75 - 125
Ethylbenzene	19.9	20.0	99	78 - 123
Isopropylbenzene (Cumene)	19.9	20.0	100	73 - 133
Methyl Acetate	19.8	20.0	99	57 - 157
Methyl tert-Butyl Ether	21.3	20.0	107	75 - 126
Methylcyclohexane	21.5	20.0	108	61 - 125
Styrene	19.9	20.0	99	80 - 132
Tetrachloroethene (PCE)	20.1	20.0	101	72 - 131
Toluene	19.3	20.0	97	78 - 122
Trichloroethene (TCE)	20.2	20.0	101	74 - 127
Trichlorofluoromethane (CFC 11)	21.7	20.0	108	69 - 141
Vinyl Chloride	22.7	20.0	113	72 - 138
cis-1,2-Dichloroethene	21.8	20.0	109	78 - 122
cis-1,3-Dichloropropene	20.0	20.0	100	77 - 125
m,p-Xylenes	40.1	40.0	100	79 - 126
n-Butyl Acetate	19.8	20.0	99	31 - 144
o-Xylene	20.2	20.0	101	77 - 118
trans-1,2-Dichloroethene	22.1	20.0	111	75 - 121
trans-1,3-Dichloropropene	19.6	20.0	98	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 6/29/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 298325

Analyte Name	Lab Control Sample RQ1207393-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1207393-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	26.7	26.0	103	30.6	26.0	118	56 - 148	13	20
Ethene	23.9	24.3	98	27.4	24.3	113	58 - 155	14	20
Methane	27.4	26.2	105	31.3	26.2	119	55 - 150	13	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/26/12
Sample Matrix: Water

Service Request: R1204087
Date Analyzed: 7/ 2/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 298512

Lab Control Sample
RQ1207439-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	25.3	26.0	97	56 - 148
Ethene	22.6	24.3	93	58 - 155
Methane	25.4	26.2	97	55 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FO0552B

Project Manager: Rebecca Daprato Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
LC34-IW0070D-040.5-20120626	6/26/2012	0938	-001	W	3	3									
LC34-IW0070D1-070.0-20120626	6/26/2012	0908	-002	W	3	3									
LC34-IW0071D-040.5-20120626	6/26/2012	1016	-003	W	3	3									
~~LC34-IW0071D-070.0-20120626~~	~~6/26/2012~~	~~1011~~		~~W~~	~~3~~	~~3~~									
LC34-IW0071D-070.0-20120626	6/26/12	1011	-004	W	3	3									
				W	0										
				W	0										
				W	0										
				W	0										
				W	0										

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1204087 5

GeoSyntec Consultants
ESTCP PED LC34 FO0552B 6/26/12

Invoice Information

P.O. # ____

Bill to: FO0552B

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Barnett	Printed Name:	Printed Name:	Printed Name:
Firm: GeoSyntec	Firm:	Firm:	Firm:
Date/Time: 6/26/12 - 1700	Date/Time:	Date/Time:	Date/Time: 6/27/12 0940

5750

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FO0552B

Project Manager: Rebecca Daprato Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
LC34-BW0002C-038.5-20120626	6/26/2012	1123	-005	W	15	3	1	1	X	1	3	1	1	1	
LC34-BW0002D-045.5-20120626	6/26/2012	1044	-006	W	15	3	1	1	3	1	X	1	1	1	KB 6/27/12
LC34-BW0002E-052.5-20120626	6/26/2012	1000	-007	W	15	3	1	1	3	1	3	1	1	1	
LC34-BW0002F-059.5-20120626	6/26/2012	0917	-008	W	15	3	1	1	X	1	3	1	1	1	
LC34-IW0076-075.0-20120626	6/26/2012	1333	-009	W	9	3	3	3							
LC34-IW0002I-027.5-20120626	6/26/2012	1414	-010	W	9	3	3	3							
LC34-IW0002D-037.5-20120626	6/26/2012	1419	-011	W	9	3	3	3							
LC34-IW0002D1-052.5-20120626	6/26/2012	1333	-012	W	9	3	3	3							
LC34-IW0067D-040.5-20120626	6/26/2012	1210	-013	W	3	3									
LC34-IW0067D1-068.0-20120626	6/26/2012	1139	-014	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1204087 5
GeoSyntec Consultants
ESTCP PED LC34 FO0552B 6/26/12

Invoice Information

P.O. #

Bill to: FO0552B

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: JOSEPH BARTLETT	Printed Name:	Printed Name:	Printed Name:
Firm: GEOSYNTEC	Firm:	Firm:	Firm: ARS
Date/Time: 6/26/12 - 1700	Date/Time:	Date/Time:	Date/Time: 6/27/12 0940

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FO0552B

Project Manager: Rebecca Daprato Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
					Analysis Requested										
LC34-RW0007-038.5-20120626	6/26/2012	1326	-015	W	9	3	3	3							
LC34-RW0008-052.0-20120626	6/26/2012	1416	-016	W	9	3	3	3							
LC34-BW0001A-024.5-20120626	6/26/2012	0960	-017	W	8	3	2	3							
LC34-BW0001B-031.5-20120626	6/26/2012	0945	-018	W	9	3	3	3							
LC34-BW0001C-038.5-20120626	6/26/2012	1035	-019	W	9	3	3	3							
LC34-BW0001D-045.5-20120626	6/26/2012	1115	-020	W	9	3	3	3							
LC34-BW0001E-052.5-20120626	6/26/2012	1245	-021	W	9	3	3	3							
LC34-BW0001F-059.5-20120626	6/26/2012	1213	-022	W	9	3	3	3							
LC34-BW0002A-024.5-20120626	6/26/2012	1248	-023	W	9	3	3	3							
LC34-BW0002B-031.5-20120626	6/26/2012	1212	-024	W	9	3	3	3							

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: FO0552B

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1204057

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: JOSEPH BARGOT	Printed Name:	Printed Name:	Printed Name:
Firm: GEOSYNTEC	Firm:	Firm:	Firm:
Date/Time: 6/26/12 - 1700	Date/Time:	Date/Time:	Date/Time: 6/27/12 0940

02709

Cooler Receipt and Preservation Check Form

Project/Client Geosyntec Folder Number R1204087

Cooler received on 6/27/12 by: HD COURIER: ALS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO			
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	N/A		
5.	Were **Ice** or **Ice packs** present?	YES	NO			
6.	Where did the bottles originate?	ALS/ROC	CLIENT			
7.	Temperature of cooler(s) upon receipt:	2.1°	2.6°	2.0°	____	____
	Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 6/27/12 0943

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: _____

All Samples held in storage location _____ by _____ on _____ at _____

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: VB 6/27/12

Cooler Breakdown: Date: 6/27/12 Time: 1305 by: DM

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		N/A

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC112015C	6/13				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	4111060	1/13				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 2-059-001, 2-059-002, 2-059-003

Other Comments:

Bubbles: IW0002D1 (1 vial)
IW0076 (1 vial)
RW0007 (1 vial)

PC Secondary Review: VB 7/3/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

July 17, 2012 Service Request No: R1204170

Dr. Rebecca Daprato
GeoSyntec Consultants
2692 Madison Rd
Suite N1 #223
Cincinatti, OH 45208

Laboratory Results for: ESTCP PED LC34 FO0552B 6/27/12

Dear Dr. Daprato:

Enclosed are the results of the sample(s) submitted to our laboratory on June 29, 2012. For your reference, these analyses have been assigned our service request number **R1204170**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Karen.Bunker@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
Environmental www.caslab.com ▪ www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

Client:	Geosyntec Consultants	**Service Request No.:**	R1204170
Project:	ESTCP PED LC34/ FO0552B (6/27/12)	**Date Received:**	6/29/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Seven (7) water samples were collected by the client on 6/27/12 and were received for analysis at Columbia Analytical Services on 6/29/12 via a national courier The samples were received at a cooler temperature of 10.7°C, outside the guidelines of 0-6°C. The client was notified via the Sample Confirmation and permission was given to proceed with the analyses. The chain of custody forms were consistent with the samples received. Bubbles were noted in 1 vial each of 2 different locations as noted on the Cooler Receipt and Preservation Check Form.

Volatile Organic Compounds GC/MS

Seven (7) water samples were analyzed for a client specific list of Volatile Organics by GC/MS Method 8260C. Six (6) samples were also analyzed for GC Method RSK-175.

The Initial Calibration and Continuing Calibration criteria was met for all samples.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LCSD) recoveries were all within QC limits.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Inorganics

Six (6) water samples were analyzed for TOC analysis by method 9060A.

All initial and continuing calibration criteria were met.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were within acceptance limits.

All Method Blanks were free from contamination.

All samples were analyzed within the proper holding time.

No problems were encountered during the analysis of these samples.

Approved by Karen Burke **Date** 7/17/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1204170

Lab ID	Client ID
R1204170-001	LC34-BW0003A-024.5-20120627
R1204170-002	LC34-BW0003B-031.5-20120627
R1204170-003	LC34-BW0003C-038.5-20120627
R1204170-004	LC34-BW0003D-045.5-20120627
R1204170-005	LC34-BW0003E-052.5-20120627
R1204170-006	LC34-BW0003F-059.5-20120627
R1204170-007	LC34-1DW-188680-20120627

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 0955
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003A-024.5-20120627		
Lab Code:	R1204170-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.4**		mg/L	1.0	1	NA	7/4/12 07:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 0955
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 21:05
Sample Name:	LC34-BW0003A-024.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9109.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**2500**		250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	500	U	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	500	U	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 0955
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 21:05
Sample Name:	LC34-BW0003A-024.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9109.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**560**		250	12	
156-59-2	cis-1,2-Dichloroethene	**5200**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	250	U	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**220**	I	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/2/12 21:05	
Dibromofluoromethane	103	89-119	7/2/12 21:05	
Toluene-d8	99	87-121	7/2/12 21:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 0955
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 10:20
Sample Name:	LC34-BW0003A-024.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298647
Data File Name:	star322.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**1.1**		1.0	
74-85-1	Ethene	**24**		1.0	
74-82-8	Methane	**82**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1022
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003B-031.5-20120627		
Lab Code:	R1204170-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.6**		mg/L	1.0	1	NA	7/4/12 08:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1022
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 20:48
Sample Name:	LC34-BW0003B-031.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9146.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**190**	I	250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	500	U	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	500	U	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1022
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 20:48
Sample Name:	LC34-BW0003B-031.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9146.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**1000**		250	12	
156-59-2	cis-1,2-Dichloroethene	**6600**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	250	U	250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**270**		250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	7/3/12 20:48	
Dibromofluoromethane	105	89-119	7/3/12 20:48	
Toluene-d8	98	87-121	7/3/12 20:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1022
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 10:34
Sample Name:	LC34-BW0003B-031.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298647
Data File Name:	star323.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	**20**		1.0	
74-82-8	Methane	**76**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1056
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003C-038.5-20120627		
Lab Code:	R1204170-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**4.2**		mg/L	1.0	1	NA	7/4/12 08:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1056
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003C-038.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	7/2/12 22:22		298582	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	7/2/12 22:22		298582	
1,1,2-Trichloroethane	500	U	500	23	100	NA	7/2/12 22:22		298582	
1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	31	100	NA	7/2/12 22:22		298582	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	7/2/12 22:22		298582	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	7/2/12 22:22		298582	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	7/2/12 22:22		298582	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	7/2/12 22:22		298582	
1,2-Dibromoethane	500	U	500	20	100	NA	7/2/12 22:22		298582	
1,2-Dichlorobenzene	500	U	500	20	100	NA	7/2/12 22:22		298582	
1,2-Dichloroethane	500	U	500	20	100	NA	7/2/12 22:22		298582	
1,2-Dichloropropane	500	U	500	29	100	NA	7/2/12 22:22		298582	
1,3-Dichlorobenzene	500	U	500	20	100	NA	7/2/12 22:22		298582	
1,4-Dichlorobenzene	500	U	500	20	100	NA	7/2/12 22:22		298582	
n-Butanol	25000	U	25000	1100	100	NA	7/2/12 22:22		298582	
2-Butanone (MEK)	1000	U	1000	51	100	NA	7/2/12 22:22		298582	
2-Hexanone	1000	U	1000	35	100	NA	7/2/12 22:22		298582	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	7/2/12 22:22		298582	
Acetone	1000	U	1000	98	100	NA	7/2/12 22:22		298582	
Benzene	500	U	500	21	100	NA	7/2/12 22:22		298582	
Bromodichloromethane	500	U	500	20	100	NA	7/2/12 22:22		298582	
Bromoform	500	U	500	27	100	NA	7/2/12 22:22		298582	
Bromomethane	500	U	500	31	100	NA	7/2/12 22:22		298582	
Carbon Disulfide	1000	U	1000	20	100	NA	7/2/12 22:22		298582	
Carbon Tetrachloride	500	U	500	27	100	NA	7/2/12 22:22		298582	
Chlorobenzene	500	U	500	20	100	NA	7/2/12 22:22		298582	
Chloroethane	500	U	500	31	100	NA	7/2/12 22:22		298582	
Chloroform	500	U	500	22	100	NA	7/2/12 22:22		298582	
Chloromethane	500	U	500	24	100	NA	7/2/12 22:22		298582	
Cyclohexane	1000	U	1000	24	100	NA	7/2/12 22:22		298582	
Dibromochloromethane	500	U	500	20	100	NA	7/2/12 22:22		298582	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	7/2/12 22:22		298582	
Dichloromethane	500	U	500	22	100	NA	7/2/12 22:22		298582	
Ethylbenzene	500	U	500	20	100	NA	7/2/12 22:22		298582	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	7/2/12 22:22		298582	
Methyl Acetate	1000	U	1000	23	100	NA	7/2/12 22:22		298582	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1056
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003C-038.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	7/2/12 22:22		298582	
Methylcyclohexane	1000	U	1000	25	100	NA	7/2/12 22:22		298582	
Styrene	500	U	500	20	100	NA	7/2/12 22:22		298582	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	7/2/12 22:22		298582	
Toluene	500	U	500	20	100	NA	7/2/12 22:22		298582	
Trichloroethene (TCE)	500	U	500	23	100	NA	7/2/12 22:22		298582	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	7/2/12 22:22		298582	
Vinyl Chloride	**8600**		500	23	100	NA	7/2/12 22:22		298582	
cis-1,2-Dichloroethene	**22000**		1000	40	200	NA	7/3/12 21:26		298776	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	7/2/12 22:22		298582	
m,p-Xylenes	500	U	500	20	100	NA	7/2/12 22:22		298582	
n-Butyl Acetate	500	U	500	21	100	NA	7/2/12 22:22		298582	
o-Xylene	500	U	500	20	100	NA	7/2/12 22:22		298582	
trans-1,2-Dichloroethene	**840**		500	20	100	NA	7/2/12 22:22		298582	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	7/2/12 22:22		298582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/2/12 22:22	
Dibromofluoromethane	103	89-119	7/2/12 22:22	
Toluene-d8	99	87-121	7/2/12 22:22	

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Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1056
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 10:44
Sample Name:	LC34-BW0003C-038.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298647
Data File Name:	star324.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**13**		10	
74-85-1	Ethene	**620**		10	
74-82-8	Methane	**210**		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1135
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003D-045.5-20120627		
Lab Code:	R1204170-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	59		mg/L	10	10	NA	7/4/12 11:26	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1135
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 23:00
Sample Name:	LC34-BW0003D-045.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9112.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	130	U	130	5.8	
79-34-5	1,1,2,2-Tetrachloroethane	130	U	130	5.0	
79-00-5	1,1,2-Trichloroethane	130	U	130	5.8	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**45**	I	130	7.8	
75-34-3	1,1-Dichloroethane (1,1-DCA)	130	U	130	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	130	U	130	7.3	
120-82-1	1,2,4-Trichlorobenzene	130	U	130	6.5	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	130	U	130	9.5	
106-93-4	1,2-Dibromoethane	130	U	130	5.0	
95-50-1	1,2-Dichlorobenzene	130	U	130	5.0	
107-06-2	1,2-Dichloroethane	130	U	130	5.0	
78-87-5	1,2-Dichloropropane	130	U	130	7.1	
541-73-1	1,3-Dichlorobenzene	130	U	130	5.0	
106-46-7	1,4-Dichlorobenzene	130	U	130	5.0	
71-36-3	n-Butanol	6300	U	6300	270	
78-93-3	2-Butanone (MEK)	250	U	250	13	
591-78-6	2-Hexanone	250	U	250	8.8	
108-10-1	4-Methyl-2-pentanone	250	U	250	6.8	
67-64-1	Acetone	250	U	250	25	
71-43-2	Benzene	130	U	130	5.3	
75-27-4	Bromodichloromethane	130	U	130	5.0	
75-25-2	Bromoform	130	U	130	6.8	
74-83-9	Bromomethane	130	U	130	7.8	
75-15-0	Carbon Disulfide	**6.0**	I	250	5.0	
56-23-5	Carbon Tetrachloride	130	U	130	6.8	
108-90-7	Chlorobenzene	130	U	130	5.0	
75-00-3	Chloroethane	130	U	130	7.8	
67-66-3	Chloroform	130	U	130	5.5	
74-87-3	Chloromethane	130	U	130	6.0	
110-82-7	Cyclohexane	250	U	250	6.0	
124-48-1	Dibromochloromethane	130	U	130	5.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	130	U	130	15	
75-09-2	Dichloromethane	130	U	130	5.5	
100-41-4	Ethylbenzene	130	U	130	5.0	
98-82-8	Isopropylbenzene (Cumene)	130	U	130	5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1135
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 23:00
Sample Name:	LC34-BW0003D-045.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9112.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	250	U	250	5.8	
1634-04-4	Methyl tert-Butyl Ether	130	U	130	5.0	
108-87-2	Methylcyclohexane	250	U	250	6.3	
100-42-5	Styrene	130	U	130	5.0	
127-18-4	Tetrachloroethene (PCE)	130	U	130	5.0	
108-88-3	Toluene	130	U	130	5.0	
79-01-6	Trichloroethene (TCE)	130	U	130	5.8	
75-69-4	Trichlorofluoromethane (CFC 11)	130	U	130	5.0	
75-01-4	Vinyl Chloride	**4000**		130	5.8	
156-59-2	cis-1,2-Dichloroethene	**360**		130	5.0	
10061-01-5	cis-1,3-Dichloropropene	130	U	130	5.0	
179601-23-1	m,p-Xylenes	130	U	130	5.0	
123-86-4	n-Butyl Acetate	130	U	130	5.3	
95-47-6	o-Xylene	130	U	130	5.0	
156-60-5	trans-1,2-Dichloroethene	**65**	I	130	5.0	
10061-02-6	trans-1,3-Dichloropropene	130	U	130	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/2/12 23:00	
Dibromofluoromethane	102	89-119	7/2/12 23:00	
Toluene-d8	97	87-121	7/2/12 23:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1135
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 10:56
Sample Name:	LC34-BW0003D-045.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298647
Data File Name:	star325.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**26**		25	
74-85-1	Ethene	**910**		25	
74-82-8	Methane	**1400**		50	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1250
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003E-052.5-20120627		
Lab Code:	R1204170-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**42.1**		mg/L	4.0	4	NA	7/4/12 12:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1250
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 19:31
Sample Name:	LC34-BW0003E-052.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9144.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.46**	I	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**4.3**	I	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	**1.5**	I	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1250
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/3/12 19:31
Sample Name:	LC34-BW0003E-052.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9144.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**66**		5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**4.2**	I	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	**27**		5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**4.8**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/3/12 19:31	
Dibromofluoromethane	102	89-119	7/3/12 19:31	
Toluene-d8	99	87-121	7/3/12 19:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1250
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003E-052.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**18**		5.0	5	NA	7/3/12 11:06		298647	
Ethene	**850**		20	20	NA	7/3/12 12:08		298647	
Methane	**680**		40	20	NA	7/3/12 12:08		298647	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1323
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003F-059.5-20120627		
Lab Code:	R1204170-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**4.5**		mg/L	1.0	1	NA	7/10/12 17:57	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1323
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 20:27
Sample Name:	LC34-BW0003F-059.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9108.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**66**		5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	**1.5**	I	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1323
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 20:27
Sample Name:	LC34-BW0003F-059.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9108.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**26**		5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**0.91**	I	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	**15**		5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.43**	I	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	7/2/12 20:27	
Dibromofluoromethane	102	89-119	7/2/12 20:27	
Toluene-d8	98	87-121	7/2/12 20:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1323
Sample Matrix:	Water	**Date Received:**	6/29/12
Sample Name:	LC34-BW0003F-059.5-20120627	**Units:**	µg/L
Lab Code:	R1204170-006	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	10	U	10	10	NA	7/3/12 11:44		298647	
Ethene	**85**		10	10	NA	7/3/12 11:44		298647	
Methane	**1300**		40	20	NA	7/3/12 12:21		298647	

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Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1410
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 19:11
Sample Name:	LC34-1DW-188680-20120627	**Units:**	µg/L
Lab Code:	R1204170-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9106.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	12	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	10	
79-00-5	1,1,2-Trichloroethane	250	U	250	12	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**89**	I	250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**21**	I	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	15	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	13	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	19	
106-93-4	1,2-Dibromoethane	250	U	250	10	
95-50-1	1,2-Dichlorobenzene	250	U	250	10	
107-06-2	1,2-Dichloroethane	250	U	250	10	
78-87-5	1,2-Dichloropropane	250	U	250	15	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	**1500**	I	13000	530	
78-93-3	2-Butanone (MEK)	500	U	500	26	
591-78-6	2-Hexanone	500	U	500	18	
108-10-1	4-Methyl-2-pentanone	500	U	500	14	
67-64-1	Acetone	**170**	I	500	49	
71-43-2	Benzene	250	U	250	11	
75-27-4	Bromodichloromethane	250	U	250	10	
75-25-2	Bromoform	250	U	250	14	
74-83-9	Bromomethane	250	U	250	16	
75-15-0	Carbon Disulfide	**73**	I	500	10	
56-23-5	Carbon Tetrachloride	250	U	250	14	
108-90-7	Chlorobenzene	250	U	250	10	
75-00-3	Chloroethane	250	U	250	16	
67-66-3	Chloroform	250	U	250	11	
74-87-3	Chloromethane	250	U	250	12	
110-82-7	Cyclohexane	500	U	500	12	
124-48-1	Dibromochloromethane	250	U	250	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	29	
75-09-2	Dichloromethane	250	U	250	11	
100-41-4	Ethylbenzene	250	U	250	10	
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	6/27/12 1410
Sample Matrix:	Water	**Date Received:**	6/29/12
		Date Analyzed:	7/2/12 19:11
Sample Name:	LC34-1DW-188680-20120627	**Units:**	µg/L
Lab Code:	R1204170-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9106.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	500	U	500	12	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	10	
108-87-2	Methylcyclohexane	500	U	500	13	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	10	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**65**	I	250	12	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**3600**		250	12	
156-59-2	cis-1,2-Dichloroethene	**270**		250	10	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	10	
179601-23-1	m,p-Xylenes	250	U	250	10	
123-86-4	n-Butyl Acetate	**9500**		250	11	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**240**	I	250	10	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	7/2/12 19:11	
Dibromofluoromethane	101	89-119	7/2/12 19:11	
Toluene-d8	99	87-121	7/2/12 19:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1204170-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	7/3/12 18:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1204170-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	7/4/12 10:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1204170-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	7/10/12 16:37	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/2/12 17:54
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207459-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9104.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/2/12 17:54
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207459-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298582
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070212\J9104.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/2/12 17:54	
Dibromofluoromethane	102	89-119	7/2/12 17:54	
Toluene-d8	99	87-121	7/2/12 17:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/3/12 18:53
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207523-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9143.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.23	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.20	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.20	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.20	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.28	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	11	
78-93-3	2-Butanone (MEK)	10	U	10	0.51	
591-78-6	2-Hexanone	10	U	10	0.35	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.27	
67-64-1	Acetone	10	U	10	0.98	
71-43-2	Benzene	5.0	U	5.0	0.21	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.20	
75-25-2	Bromoform	5.0	U	5.0	0.27	
74-83-9	Bromomethane	5.0	U	5.0	0.31	
75-15-0	Carbon Disulfide	10	U	10	0.20	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.27	
108-90-7	Chlorobenzene	5.0	U	5.0	0.20	
75-00-3	Chloroethane	5.0	U	5.0	0.31	
67-66-3	Chloroform	5.0	U	5.0	0.22	
74-87-3	Chloromethane	5.0	U	5.0	0.24	
110-82-7	Cyclohexane	10	U	10	0.24	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.20	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	
75-09-2	Dichloromethane	5.0	U	5.0	0.22	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/3/12 18:53
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207523-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	298776
Data File Name:	J:\ACQUDATA\MSVOA7\DATA\070312\J9143.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.23	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.20	
108-87-2	Methylcyclohexane	10	U	10	0.25	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.20	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.23	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.23	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.20	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.20	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.21	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.20	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	7/3/12 18:53	
Dibromofluoromethane	103	89-119	7/3/12 18:53	
Toluene-d8	97	87-121	7/3/12 18:53	

Client:	GeoSyntec Consultants	**Service Request:**	R1204170
Project:	ESTCP PED LC34 FO0552B 6/27/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	7/3/12 09:36
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1207475-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	298647
Data File Name:	star319.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	2.0	U	2.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/ 3/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1204170-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	10.5	10.0	105	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/ 4/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1204170-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	10.4	10.0	104	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/10/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1204170-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	10.3	10.0	103	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/ 2/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298582

Lab Control Sample
RQ1207459-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.3	20.0	97	72 - 128
1,1,2,2-Tetrachloroethane	18.7	20.0	94	72 - 131
1,1,2-Trichloroethane	19.4	20.0	97	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	19.1	20.0	96	68 - 136
1,1-Dichloroethane (1,1-DCA)	22.0	20.0	110	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.9	20.0	105	72 - 129
1,2,4-Trichlorobenzene	17.3	20.0	87	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.1	20.0	81	62 - 131
1,2-Dibromoethane	18.4	20.0	92	78 - 125
1,2-Dichlorobenzene	18.0	20.0	90	79 - 124
1,2-Dichloroethane	21.3	20.0	107	73 - 127
1,2-Dichloropropane	21.0	20.0	105	80 - 123
1,3-Dichlorobenzene	18.3	20.0	92	78 - 124
1,4-Dichlorobenzene	18.8	20.0	94	78 - 123
n-Butanol	971	1010	97	70 - 130
2-Butanone (MEK)	19.6	20.0	98	60 - 133
2-Hexanone	18.5	20.0	92	61 - 131
4-Methyl-2-pentanone	18.4	20.0	92	61 - 132
Acetone	20.4	20.0	102	54 - 139
Benzene	19.4	20.0	97	78 - 121
Bromodichloromethane	20.2	20.0	101	80 - 125
Bromoform	18.0	20.0	90	68 - 130
Bromomethane	18.7	20.0	93	57 - 144
Carbon Disulfide	22.9	20.0	115	52 - 140
Carbon Tetrachloride	18.9	20.0	95	68 - 133
Chlorobenzene	19.0	20.0	95	80 - 121
Chloroethane	20.6	20.0	103	71 - 130
Chloroform	21.1	20.0	106	78 - 125
Chloromethane	21.4	20.0	107	61 - 138
Cyclohexane	20.3	20.0	101	57 - 126
Dibromochloromethane	19.3	20.0	96	78 - 133
Dichlorodifluoromethane (CFC 12)	20.3	20.0	101	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/2/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298582

Lab Control Sample
RQ1207459-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	20.2	20.0	101	75 - 125
Ethylbenzene	18.3	20.0	92	78 - 123
Isopropylbenzene (Cumene)	18.1	20.0	90	73 - 133
Methyl Acetate	17.5	20.0	88	57 - 157
Methyl tert-Butyl Ether	19.9	20.0	100	75 - 126
Methylcyclohexane	21.8	20.0	109	61 - 125
Styrene	18.7	20.0	93	80 - 132
Tetrachloroethene (PCE)	18.2	20.0	91	72 - 131
Toluene	18.1	20.0	91	78 - 122
Trichloroethene (TCE)	19.4	20.0	97	74 - 127
Trichlorofluoromethane (CFC 11)	19.4	20.0	97	69 - 141
Vinyl Chloride	20.4	20.0	102	72 - 138
cis-1,2-Dichloroethene	20.7	20.0	103	78 - 122
cis-1,3-Dichloropropene	20.3	20.0	102	77 - 125
m,p-Xylenes	37.5	40.0	94	79 - 126
n-Butyl Acetate	18.7	20.0	93	31 - 144
o-Xylene	18.8	20.0	94	77 - 118
trans-1,2-Dichloroethene	20.5	20.0	102	75 - 121
trans-1,3-Dichloropropene	19.2	20.0	96	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/ 3/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298776

Lab Control Sample
RQ1207523-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	21.4	20.0	107	72 - 128
1,1,2,2-Tetrachloroethane	19.6	20.0	98	72 - 131
1,1,2-Trichloroethane	19.5	20.0	98	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	21.0	20.0	105	68 - 136
1,1-Dichloroethane (1,1-DCA)	23.2	20.0	116	76 - 124
1,1-Dichloroethene (1,1-DCE)	23.3	20.0	117	72 - 129
1,2,4-Trichlorobenzene	18.2	20.0	91	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	17.2	20.0	86	62 - 131
1,2-Dibromoethane	19.3	20.0	96	78 - 125
1,2-Dichlorobenzene	19.1	20.0	96	79 - 124
1,2-Dichloroethane	22.7	20.0	113	73 - 127
1,2-Dichloropropane	21.1	20.0	106	80 - 123
1,3-Dichlorobenzene	19.8	20.0	99	78 - 124
1,4-Dichlorobenzene	20.0	20.0	100	78 - 123
n-Butanol	1120	1010	112	70 - 130
2-Butanone (MEK)	21.7	20.0	109	60 - 133
2-Hexanone	20.4	20.0	102	61 - 131
4-Methyl-2-pentanone	20.8	20.0	104	61 - 132
Acetone	21.2	20.0	106	54 - 139
Benzene	20.3	20.0	102	78 - 121
Bromodichloromethane	20.5	20.0	102	80 - 125
Bromoform	18.9	20.0	94	68 - 130
Bromomethane	20.4	20.0	102	57 - 144
Carbon Disulfide	24.7	20.0	124	52 - 140
Carbon Tetrachloride	21.2	20.0	106	68 - 133
Chlorobenzene	20.1	20.0	100	80 - 121
Chloroethane	22.2	20.0	111	71 - 130
Chloroform	22.4	20.0	112	78 - 125
Chloromethane	21.7	20.0	108	61 - 138
Cyclohexane	21.2	20.0	106	57 - 126
Dibromochloromethane	19.5	20.0	97	78 - 133
Dichlorodifluoromethane (CFC 12)	21.7	20.0	108	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/ 3/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 298776

Lab Control Sample
RQ1207523-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	22.1	20.0	111	75 - 125
Ethylbenzene	19.9	20.0	99	78 - 123
Isopropylbenzene (Cumene)	19.9	20.0	100	73 - 133
Methyl Acetate	19.8	20.0	99	57 - 157
Methyl tert-Butyl Ether	21.3	20.0	107	75 - 126
Methylcyclohexane	21.5	20.0	108	61 - 125
Styrene	19.9	20.0	99	80 - 132
Tetrachloroethene (PCE)	20.1	20.0	101	72 - 131
Toluene	19.3	20.0	97	78 - 122
Trichloroethene (TCE)	20.2	20.0	101	74 - 127
Trichlorofluoromethane (CFC 11)	21.7	20.0	108	69 - 141
Vinyl Chloride	22.7	20.0	113	72 - 138
cis-1,2-Dichloroethene	21.8	20.0	109	78 - 122
cis-1,3-Dichloropropene	20.0	20.0	100	77 - 125
m,p-Xylenes	40.1	40.0	100	79 - 126
n-Butyl Acetate	19.8	20.0	99	31 - 144
o-Xylene	20.2	20.0	101	77 - 118
trans-1,2-Dichloroethene	22.1	20.0	111	75 - 121
trans-1,3-Dichloropropene	19.6	20.0	98	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 6/27/12
Sample Matrix: Water

Service Request: R1204170
Date Analyzed: 7/ 3/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 298647

Analyte Name	Lab Control Sample RQ1207475-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1207475-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	31.3	26.0	120	31.7	26.0	122	56 - 148	1	20
Ethene	28.4	24.3	117	28.9	24.3	119	58 - 155	2	20
Methane	31.6	26.2	121	32.4	26.2	123	55 - 150	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FO0552B

Project Manager: Rebecca Daprato Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature: Rachel Donahue

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)	REMARKS
LC34-BW0003A-024.5-20120627	6/27/2012	955	-001	W	9	3	3	3	
LC34-BW0003B-031.5-20120627	6/27/2012	1022	-002	W	9	3	3	3	
LC34-BW0003C-038.5-20120627	6/27/2012	1056	-003	W	9	3	3	3	
LC34-BW0003D-045.5-20120627	6/27/2012	1135	-004	W	9	3	3	3	
LC34-BW0003E-052.5-20120627	6/27/2012	1250	-005	W	9	3	3	3	
LC34-BW0003F-059.5-20120627	6/27/2012	1323	-006	W	9	3	3	3	
~~1131-30080~~ LC34-TDW -188 600-20120627	6/27/2012	1410	-007	W	3	3			

Rcd 6/27

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1204170 5
GeoSyntec Consultants
ESTCP PED LC34 FO0552B 6/27/12

Invoice Information

P.O. #

Bill to: FO0552B

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Rachel Donahue	Printed Name: FEDEX	Printed Name:	Printed Name: Amy Zentschke
Firm: GeoSyntec Consultants	Firm:	Firm:	Firm: ALS
Date/Time: 6/27/12 1630	Date/Time:	Date/Time:	Date/Time: 6/29/12 0925

6b599

Cooler Receipt and Preservation Check Form

Project/Client GeoSyntec Folder Number R1204170

Cooler received on 6/29/12 by: AWH COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES)	NO	N/A		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(ALS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	10.7°				
	Is the temperature within 0° - 6° C?:	Yes	Yes	Yes	Yes	Yes
	If No, Explain Below	(No)	No	No	No	No

Date/Time Temperatures Taken: 6/29/12 0935

Thermometer ID: IR GUN#3 / (IR GUN#4) Reading From: Temp Blank (Sample Bottle)

If out of Temperature, note packing/ice condition &Client Approval to Run Samples:

All Samples held in storage location R-002 by AWH on 6/29/12 at 0940

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: 6/29/12 CB client notified on sample confirm

Cooler Breakdown: Date: 6/29/12 Time: 1200 by: (AH)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC 112015C	6/13				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	4111060	5/13				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 2-059-001, 2-059-003

Other Comments:

x1 vial for BW0003F, IDW-188680 w/ bubbles

PC Secondary Review: CB 7/17/12

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

SiREM
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130 Research Lane, Ste 2
Guelph ON N1G 5G3
(519) 822-2265

Certificate of Analysis: Gene-Trac® *Dehalococcoides* Assay

Customer: Rebecca Daprato, Geosyntec Consultants
Project: LC34
Customer Reference: FO0522B

SiREM Reference: S-2548
Report Date: 12-Jul-12
Data Files: iQ5-GBA-QPCR-0019
MyiQ-DHC-QPCR-0914
MyiQ-DB-DHC-QPCR-0297

Table 1a: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent Dhc *	*Dehalococcoides* Enumeration/Liter **
LC34-BW0001C-038.5-20120626	DHC-8353	26-Jun-12	Groundwater	15 - 38 %	1×10^8
LC34-BW0001E-052.5-20120626	DHC-8354	26-Jun-12	Groundwater	3 - 7 %	2×10^7
LC34-RW0007-038.5-20120626	DHC-8355	26-Jun-12	Groundwater	4 - 11 %	2×10^7
LC34-RW0008-052.0-20120626	DHC-8356	26-Jun-12	Groundwater	11 - 28 %	9×10^7
LC34-BW0003C-038.5-20120627	DHC-8357	27-Jun-12	Groundwater	25 - 58 %	2×10^8
LC34-BW0003E-052.5-20120627	DHC-8358	27-Jun-12	Groundwater	0.6 - 2 %	3×10^6

Notes:

* Percent *Dehalococcoides* (Dhc) in microbial population. This value is calculated by dividing the number of Dhc 16S ribosomal ribonucleic acid (rRNA) gene copies by the total number of bacteria as estimated by the mass of DNA extracted from the sample. Range represents normal variation in Dhc enumeration.

** Based on quantification of Dhc 16S rRNA gene copies. Dhc are generally reported to contain one 16S rRNA gene copy per cell; therefore, this number is often interpreted to represent the number of Dhc cells present in the sample.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *Dehalococcoides* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.

Analyst: Kela Bartle
Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar
Ximena Druar, B.Sc.
Genetic Testing Coordinator

SiREM
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130 Research Lane, Ste 2
Guelph ON N1G 5G3
(519) 822-2265

Certificate of Analysis: Gene-Trac® VC, Vinyl Chloride Reductase (vcrA) Assay

Customer: Rebecca Daprato, Geosyntec Consultants
Project: LC34
Customer Reference: FO0522B

SiREM Reference: S-2548
Report Date: 12-Jul-12
Data Files: MyiQ-VC-QPCR-0488
MyiQ-DB-VC-QPCR-0224
VC-QPCR-check-gel-0508

Table 1b: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent *vcrA* *	*Dehalococcoides* Enumeration/Liter **
LC34-BW0001C-038.5-20120626	VCR-3282	26-Jun-12	Groundwater	16 - 41 %	1×10^8
LC34-BW0001E-052.5-20120626	VCR-3283	26-Jun-12	Groundwater	4 - 10 %	2×10^7
LC34-RW0007-038.5-20120626	VCR-3284	26-Jun-12	Groundwater	3 - 8 %	2×10^7
LC34-RW0008-052.0-20120626	VCR-3285	26-Jun-12	Groundwater	12 - 31 %	1×10^8
LC34-BW0003C-038.5-20120627	VCR-3286	27-Jun-12	Groundwater	13 - 34 %	9×10^7
LC34-BW0003E-052.5-20120627	VCR-3287	27-Jun-12	Groundwater	1 - 4 %	8×10^6

Notes:

* Percentage of bacteria in the microbial population that harbor the *vcrA* gene. This value is calculated by dividing the measured number of cells haboring the vinyl chloride reductase A (*vcrA*) gene by the total number of bacteria in the sample estimated using the mass of DNA extracted from the sample. Range represents normal variation in enumeration of *vcrA*.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *vcrA* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.
C Correction factor applied to correct for non-specific PCR amplification products.

Analyst: Kela Bartle
Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar
Ximena Druar, B.Sc.
Genetic Testing Coordinator

Table 2: Detailed Test Parameters, Gene-Trac Test Reference S-2548

Customer Sample ID	LC34-BW0001C-038.5-20120626	LC34-BW0001E-052.5-20120626	LC34-RW0007-038.5-20120626	LC34-RW0008-052.0-20120626	LC34-BW0003C-038.5-20120627	LC34-BW0003E-052.5-20120627
SiREM Dhc Sample ID	DHC-8353	DHC-8354	DHC-8355	DHC-8356	DHC-8357	DHC-8358
SiREM *vcrA* Sample ID	VCR-3282	VCR-3283	VCR-3284	VCR-3285	VCR-3286	VCR-3287
Date Received	29-Jun-12	29-Jun-12	29-Jun-12	29-Jun-12	29-Jun-12	29-Jun-12
Sample Temperature	8 ºC	8 ºC	8 ºC	8 ºC	8 ºC	8 ºC
Filtration Date	3-Jul-12	3-Jul-12	3-Jul-12	3-Jul-12	3-Jul-12	3-Jul-12
Volume Used for DNA Extraction	500 mL	500 mL	500 mL	500 mL	500 mL	500 mL
DNA Extraction Date	4-Jul-12	4-Jul-12	4-Jul-12	4-Jul-12	4-Jul-12	4-Jul-12
DNA Concentration in Sample (extractable)	1406 ng/L	1248 ng/L	1247 ng/L	1637 ng/L	1206 ng/L	1082 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected	Detected	Detected	Detected
Dhc qPCR Date Analyzed	6-Jul-12	6-Jul-12	6-Jul-12	6-Jul-12	6-Jul-12	6-Jul-12
***vcrA* qPCR Date Analyzed**	9-Jul-12	9-Jul-12	9-Jul-12	9-Jul-12	9-Jul-12	9-Jul-12
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed	Passed	Passed	Passed
Comments	- -	- -	- -	- -	- -	- -

Notes:

Refer to Tables 3 & 4 for detailed results of controls.

°C = degrees Celsius

vcrA = vinyl chloride reductase

PCR = polymerase chain reaction

qPCR = quantitative PCR

Dhc = Dehalococcoides

ng/L = nanograms per liter

mL = milliliters

DNA = Deoxyribonucleic acid

Table 3: Experimental Control Results, Gene-Trac Test Reference S-2548

Laboratory Control	Analysis Date	Control Description	Spiked Dhc 16S rRNA Gene Copies per Liter	Recovered Dhc 16S rRNA Gene Copies per Liter	Comments
Positive Control Low Concentration	6-Jul-12	qPCR with KB1 genomic DNA (CSLD-0551)	1.4×10^5	1.4×10^5	
Positive Control High Concentration	6-Jul-12	qPCR with KB1 genomic DNA (CSHD-0551)	1.8×10^7	1.7×10^7	
Filter Blank	6-Jul-12	DNA Extraction Sterile Water (FB-1713)	0	2.6×10^3 U	
Negative Control	6-Jul-12	Tris Reagent Blank (TBD-0511)	0	2.6×10^3 U	

Notes:

Dhc = *Dehalococcoides*

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

Table 4: Experimental Control Results, Gene-Trac Test Reference S-2548

Laboratory Control	Analysis Date	Control Description	Spiked *vcrA* reductase Gene Copies per Liter	Recovered *vcrA* reductase Gene Copies per Liter	Comments
Positive Control Low Concentration	9-Jul-12	qPCR with KB1 genomic DNA (CSLV-0356)	3.2×10^5	3.3×10^5	
Positive Control High Concentration	9-Jul-12	qPCR with KB1 genomic DNA (CSHV-0356)	3.6×10^7	5.0×10^7	
Filter Blank	9-Jul-12	DNA Extraction Sterile Water (FB-1713)	0	2.6×10^3 U	
Negative Control	9-Jul-12	Tris Reagent Blank (TBV-0327)	0	2.6×10^3 U	

Notes:

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

vcrA = vinyl chloride reductase

SiREM

Chain-of-Custody Form

siremlab.com

130 Research Lane, Ste 2
Guelph ON, Canada N1G 5G3
(519) 822-2265

Lab # 8-2548

GSTCP P&D

Project Name	LC34
Project #	F00522B
Project Manager	Rebecca Daprato
Company	Geosyntec Consultants
Address	6770 S. Washington Ave. Titusville FL 32780
Phone #	321-269-5880
Fax #	321-269-5813
Sampler's Signature	
Sampler's Printed Name	Rachel Donahue

Analysis

Client Sample ID	Lab ID	Sampling Date	Sampling Time	Matrix	# of Containers	Preservative: Dhe	Preservative: VOA	Other Information
LC34-BW0001C-038.5-20120626		6/26/12	1035	W	1	X	X	
LC34-BW0001E-052.5-20120626		6/26/12	1145	W	1	X	X	
LC34-RW0007-030.5-20120626		6/26/12	1326	W	1	X	X	
LC34-RW0008-052.0-20120626		6/26/12	1416	W	1	X	X	
LC34-BW0003C-038.5-20120626		6/26/12	1056	W	1	X	X	
LC34-BW0003E-052.5-20120626		6/26/12	1250	W	1	X	X	

Preservative Key
0. None
1. HCL
2. Other
3. Other
4. Other
5. Other
6. Other

Sample Receipt

Cooler Condition: good

Cooler Temperature: 8°C

Custody Seals: Yes ☐ No ☒

Invoice Information

P.O. #

Bill To: F00552B

For Lab Use Only

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature Kela Bartle	Signature	Signature
Printed Name Rachel Donahue	Printed Name	Printed Name	Printed Name Kela Bartle	Printed Name	Printed Name
Firm Geosyntec	Firm FedEx	Firm	Firm SiREM	Firm	Firm
Date/Time 6/27/12 1630	Date/Time	Date/Time	Date/Time June 29/12 13:00	Date/Time	Date/Time

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

In the absence of an executed agreement, submission of samples to SiREM implies consent for performance of analyses specified on this Chain-of-Custody form and agreement with the terms and conditions of the SiREM Laboratory Services Agreement. The entity submitting samples shall be responsible for payment in full for said analyses.

August 03, 2012 Service Request No: R1204678

Dr. Rebecca Daprato
GeoSyntec Consultants
2692 Madison Rd
Suite N1 #223
Cincinatti, OH 45208

Laboratory Results for: ESTCP PED C34 FO0552B 7/19/12

Dear Dr. Daprato:

Enclosed are the results of the sample(s) submitted to our laboratory on July 20, 2012. For your reference, these analyses have been assigned our service request number **R1204678**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Karen.Bunker@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

00001

Client:	Geosyntec Consultants	**Service Request No.:**	R1204678
Project:	ESTCP PED LC34/ FO552B (7/19/12)	**Date Received:**	7/20/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 7/19/12 and were received for analysis at Columbia Analytical Services on 7/20/12 via a national courier The samples were received at a cooler temperature of 3.3°C within the guidelines of 0-6°C. The chain of custody forms were consistent with the samples received. One (1) vial for each of the samples contained headspace as noted on the Cooler Receipt and Preservation form. Two (2) vials for each of the samples were acceptable

Volatile Organic Compounds GC/MS

Two (2) water samples were analyzed for a client specific list of Volatile Organics by GC/MS Method 8260C.

The initial calibration criteria was met for these samples. The Continuing Calibration Verification (CCV) %D for 1,2-Dichloroethane was outside the 20% limit on the 7/24/12 run. Any hits for this compound on the associated run should be considered as estimated, however the samples were non-detect for this compound and therefore unaffected.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LCSD) recoveries were all within QC limits.

The samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burden **Date** 8/31/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1204678

Lab ID	Client ID
R1204678-001	LC34-RW0007-038.5-20120719
R1204678-002	LC34-RW0008-052.0-20120719

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	7/19/12 1024
Sample Matrix:	Water	**Date Received:**	7/20/12
Sample Name:	LC34-RW0007-038.5-20120719	**Units:**	µg/L
Lab Code:	R1204678-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	23	100	NA	7/24/12 00:34		301385	
1,1,2,2-Tetrachloroethane	500	U	500	20	100	NA	7/24/12 00:34		301385	
1,1,2-Trichloroethane	500	U	500	23	100	NA	7/24/12 00:34		301385	
1,1,2-Trichloro-1,2,2-trifluoroethane	**8900**		500	31	100	NA	7/24/12 00:34		301385	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	7/24/12 00:34		301385	
1,1-Dichloroethene (1,1-DCE)	500	U	500	29	100	NA	7/24/12 00:34		301385	
1,2,4-Trichlorobenzene	500	U	500	26	100	NA	7/24/12 00:34		301385	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	38	100	NA	7/24/12 00:34		301385	
1,2-Dibromoethane	500	U	500	20	100	NA	7/24/12 00:34		301385	
1,2-Dichlorobenzene	500	U	500	20	100	NA	7/24/12 00:34		301385	
1,2-Dichloroethane	500	U	500	20	100	NA	7/24/12 00:34		301385	
1,2-Dichloropropane	500	U	500	29	100	NA	7/24/12 00:34		301385	
1,3-Dichlorobenzene	500	U	500	20	100	NA	7/24/12 00:34		301385	
1,4-Dichlorobenzene	500	U	500	20	100	NA	7/24/12 00:34		301385	
n-Butanol	25000	U	25000	1100	100	NA	7/24/12 00:34		301385	
2-Butanone (MEK)	1000	U	1000	51	100	NA	7/24/12 00:34		301385	
2-Hexanone	1000	U	1000	35	100	NA	7/24/12 00:34		301385	
4-Methyl-2-pentanone	1000	U	1000	27	100	NA	7/24/12 00:34		301385	
Acetone	**180**	I	1000	98	100	NA	7/24/12 00:34		301385	
Benzene	500	U	500	21	100	NA	7/24/12 00:34		301385	
Bromodichloromethane	500	U	500	20	100	NA	7/24/12 00:34		301385	
Bromoform	500	U	500	27	100	NA	7/24/12 00:34		301385	
Bromomethane	500	U	500	31	100	NA	7/24/12 00:34		301385	
Carbon Disulfide	1000	U	1000	20	100	NA	7/24/12 00:34		301385	
Carbon Tetrachloride	500	U	500	27	100	NA	7/24/12 00:34		301385	
Chlorobenzene	500	U	500	20	100	NA	7/24/12 00:34		301385	
Chloroethane	500	U	500	31	100	NA	7/24/12 00:34		301385	
Chloroform	500	U	500	22	100	NA	7/24/12 00:34		301385	
Chloromethane	500	U	500	24	100	NA	7/24/12 00:34		301385	
Cyclohexane	1000	U	1000	24	100	NA	7/24/12 00:34		301385	
Dibromochloromethane	500	U	500	20	100	NA	7/24/12 00:34		301385	
Dichlorodifluoromethane (CFC 12)	500	U	500	57	100	NA	7/24/12 00:34		301385	
Dichloromethane	500	U	500	22	100	NA	7/24/12 00:34		301385	
Ethylbenzene	500	U	500	20	100	NA	7/24/12 00:34		301385	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	7/24/12 00:34		301385	
Methyl Acetate	1000	U	1000	23	100	NA	7/24/12 00:34		301385	

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	7/19/12 1024
Sample Matrix:	Water	**Date Received:**	7/20/12
Sample Name:	LC34-RW0007-038.5-20120719	**Units:**	µg/L
Lab Code:	R1204678-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	20	100	NA	7/24/12 00:34		301385	
Methylcyclohexane	1000	U	1000	25	100	NA	7/24/12 00:34		301385	
Styrene	500	U	500	20	100	NA	7/24/12 00:34		301385	
Tetrachloroethene (PCE)	500	U	500	20	100	NA	7/24/12 00:34		301385	
Toluene	500	U	500	20	100	NA	7/24/12 00:34		301385	
Trichloroethene (TCE)	**640**		500	23	100	NA	7/24/12 00:34		301385	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	7/24/12 00:34		301385	
Vinyl Chloride	**7900**		500	23	100	NA	7/24/12 00:34		301385	
cis-1,2-Dichloroethene	**4600**		500	20	100	NA	7/24/12 00:34		301385	
cis-1,3-Dichloropropene	500	U	500	20	100	NA	7/24/12 00:34		301385	
m,p-Xylenes	500	U	500	20	100	NA	7/24/12 00:34		301385	
n-Butyl Acetate	500	U	500	21	100	NA	7/24/12 00:34		301385	
o-Xylene	500	U	500	20	100	NA	7/24/12 00:34		301385	
trans-1,2-Dichloroethene	**260**	I	500	20	100	NA	7/24/12 00:34		301385	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	7/24/12 00:34		301385	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/24/12 00:34	
Dibromofluoromethane	103	89-119	7/24/12 00:34	
Toluene-d8	101	87-121	7/24/12 00:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	7/19/12 1106
Sample Matrix:	Water	**Date Received:**	7/20/12
Sample Name:	LC34-RW0008-052.0-20120719	**Units:**	µg/L
Lab Code:	R1204678-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.2	5	NA	7/24/12 19:08		301592	
1,1,2,2-Tetrachloroethane	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
1,1,2-Trichloroethane	25	U	25	1.2	5	NA	7/24/12 19:08		301592	
1,1,2-Trichloro-1,2,2-trifluoroethane	**840**		25	1.6	5	NA	7/24/12 19:08		301592	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
1,1-Dichloroethene (1,1-DCE)	**2.7**	I	25	1.5	5	NA	7/24/12 19:08		301592	
1,2,4-Trichlorobenzene	25	U	25	1.3	5	NA	7/24/12 19:08		301592	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	1.9	5	NA	7/24/12 19:08		301592	
1,2-Dibromoethane	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
1,2-Dichlorobenzene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
1,2-Dichloroethane	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
1,2-Dichloropropane	25	U	25	1.5	5	NA	7/24/12 19:08		301592	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
n-Butanol	1300	U	1300	53	5	NA	7/24/12 19:08		301592	
2-Butanone (MEK)	50	U	50	2.6	5	NA	7/24/12 19:08		301592	
2-Hexanone	50	U	50	1.8	5	NA	7/24/12 19:08		301592	
4-Methyl-2-pentanone	50	U	50	1.4	5	NA	7/24/12 19:08		301592	
Acetone	**26**	I	50	4.9	5	NA	7/24/12 19:08		301592	
Benzene	25	U	25	1.1	5	NA	7/24/12 19:08		301592	
Bromodichloromethane	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Bromoform	25	U	25	1.4	5	NA	7/24/12 19:08		301592	
Bromomethane	25	U	25	1.6	5	NA	7/24/12 19:08		301592	
Carbon Disulfide	**3.2**	I	50	1.0	5	NA	7/24/12 19:08		301592	
Carbon Tetrachloride	25	U	25	1.4	5	NA	7/24/12 19:08		301592	
Chlorobenzene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Chloroethane	25	U	25	1.6	5	NA	7/24/12 19:08		301592	
Chloroform	25	U	25	1.1	5	NA	7/24/12 19:08		301592	
Chloromethane	25	U	25	1.2	5	NA	7/24/12 19:08		301592	
Cyclohexane	50	U	50	1.2	5	NA	7/24/12 19:08		301592	
Dibromochloromethane	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.9	5	NA	7/24/12 19:08		301592	
Dichloromethane	25	U	25	1.1	5	NA	7/24/12 19:08		301592	
Ethylbenzene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Methyl Acetate	50	U	50	1.2	5	NA	7/24/12 19:08		301592	

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	7/19/12 1106
Sample Matrix:	Water	**Date Received:**	7/20/12
Sample Name:	LC34-RW0008-052.0-20120719	**Units:**	µg/L
Lab Code:	R1204678-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Methylcyclohexane	50	U	50	1.3	5	NA	7/24/12 19:08		301592	
Styrene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Tetrachloroethene (PCE)	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Toluene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Trichloroethene (TCE)	**450**		25	1.2	5	NA	7/24/12 19:08		301592	
Trichlorofluoromethane (CFC 11)	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
Vinyl Chloride	**870**		25	1.2	5	NA	7/24/12 19:08		301592	
cis-1,2-Dichloroethene	**640**		25	1.0	5	NA	7/24/12 19:08		301592	
cis-1,3-Dichloropropene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
m,p-Xylenes	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
n-Butyl Acetate	25	U	25	1.1	5	NA	7/24/12 19:08		301592	
o-Xylene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	
trans-1,2-Dichloroethene	**23**	I	25	1.0	5	NA	7/24/12 19:08		301592	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	7/24/12 19:08		301592	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	7/24/12 19:08	
Dibromofluoromethane	104	89-119	7/24/12 19:08	
Toluene-d8	100	87-121	7/24/12 19:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1208295-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/23/12 16:54		301385	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/23/12 16:54		301385	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/23/12 16:54		301385	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/23/12 16:54		301385	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	7/23/12 16:54		301385	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/23/12 16:54		301385	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/23/12 16:54		301385	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
n-Butanol	250	U	250	11	1	NA	7/23/12 16:54		301385	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/23/12 16:54		301385	
2-Hexanone	10	U	10	0.35	1	NA	7/23/12 16:54		301385	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/23/12 16:54		301385	
Acetone	10	U	10	0.98	1	NA	7/23/12 16:54		301385	
Benzene	5.0	U	5.0	0.21	1	NA	7/23/12 16:54		301385	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Bromoform	5.0	U	5.0	0.27	1	NA	7/23/12 16:54		301385	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/23/12 16:54		301385	
Carbon Disulfide	10	U	10	0.20	1	NA	7/23/12 16:54		301385	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/23/12 16:54		301385	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/23/12 16:54		301385	
Chloroform	5.0	U	5.0	0.22	1	NA	7/23/12 16:54		301385	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/23/12 16:54		301385	
Cyclohexane	10	U	10	0.24	1	NA	7/23/12 16:54		301385	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/23/12 16:54		301385	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/23/12 16:54		301385	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Methyl Acetate	10	U	10	0.23	1	NA	7/23/12 16:54		301385	

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1208295-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Methylcyclohexane	10	U	10	0.25	1	NA	7/23/12 16:54		301385	
Styrene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Toluene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/23/12 16:54		301385	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/23/12 16:54		301385	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/23/12 16:54		301385	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/23/12 16:54		301385	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	7/23/12 16:54	
Dibromofluoromethane	100	89-119	7/23/12 16:54	
Toluene-d8	98	87-121	7/23/12 16:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1208382-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.23	1	NA	7/24/12 16:41		301592	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
1,1,2-Trichloroethane	5.0	U	5.0	0.23	1	NA	7/24/12 16:41		301592	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	1	NA	7/24/12 16:41		301592	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.29	1	NA	7/24/12 16:41		301592	
1,2,4-Trichlorobenzene	5.0	U	5.0	0.26	1	NA	7/24/12 16:41		301592	
1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.38	1	NA	7/24/12 16:41		301592	
1,2-Dibromoethane	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
1,2-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
1,2-Dichloroethane	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
1,2-Dichloropropane	5.0	U	5.0	0.28	1	NA	7/24/12 16:41		301592	
1,3-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
1,4-Dichlorobenzene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
n-Butanol	250	U	250	11	1	NA	7/24/12 16:41		301592	
2-Butanone (MEK)	10	U	10	0.51	1	NA	7/24/12 16:41		301592	
2-Hexanone	10	U	10	0.35	1	NA	7/24/12 16:41		301592	
4-Methyl-2-pentanone	10	U	10	0.27	1	NA	7/24/12 16:41		301592	
Acetone	10	U	10	0.98	1	NA	7/24/12 16:41		301592	
Benzene	5.0	U	5.0	0.21	1	NA	7/24/12 16:41		301592	
Bromodichloromethane	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Bromoform	5.0	U	5.0	0.27	1	NA	7/24/12 16:41		301592	
Bromomethane	5.0	U	5.0	0.31	1	NA	7/24/12 16:41		301592	
Carbon Disulfide	10	U	10	0.20	1	NA	7/24/12 16:41		301592	
Carbon Tetrachloride	5.0	U	5.0	0.27	1	NA	7/24/12 16:41		301592	
Chlorobenzene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Chloroethane	5.0	U	5.0	0.31	1	NA	7/24/12 16:41		301592	
Chloroform	5.0	U	5.0	0.22	1	NA	7/24/12 16:41		301592	
Chloromethane	5.0	U	5.0	0.24	1	NA	7/24/12 16:41		301592	
Cyclohexane	10	U	10	0.24	1	NA	7/24/12 16:41		301592	
Dibromochloromethane	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.56	1	NA	7/24/12 16:41		301592	
Dichloromethane	5.0	U	5.0	0.22	1	NA	7/24/12 16:41		301592	
Ethylbenzene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Methyl Acetate	10	U	10	0.23	1	NA	7/24/12 16:41		301592	

Client:	GeoSyntec Consultants	**Service Request:**	R1204678
Project:	ESTCP PED C34 FO0552B 7/19/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1208382-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Methylcyclohexane	10	U	10	0.25	1	NA	7/24/12 16:41		301592	
Styrene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Toluene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Trichloroethene (TCE)	5.0	U	5.0	0.23	1	NA	7/24/12 16:41		301592	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
Vinyl Chloride	5.0	U	5.0	0.23	1	NA	7/24/12 16:41		301592	
cis-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
cis-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
m,p-Xylenes	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
n-Butyl Acetate	5.0	U	5.0	0.21	1	NA	7/24/12 16:41		301592	
o-Xylene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
trans-1,2-Dichloroethene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	7/24/12 16:41		301592	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	7/24/12 16:41	
Dibromofluoromethane	102	89-119	7/24/12 16:41	
Toluene-d8	100	87-121	7/24/12 16:41	

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED C34 FO0552B 7/19/12
Sample Matrix: Water

Service Request: R1204678
Date Analyzed: 7/23/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 301385

Lab Control Sample
RQ1208295-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.6	20.0	103	72 - 128
1,1,2,2-Tetrachloroethane	20.3	20.0	101	72 - 131
1,1,2-Trichloroethane	19.0	20.0	95	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	20.3	20.0	101	68 - 136
1,1-Dichloroethane (1,1-DCA)	21.7	20.0	108	76 - 124
1,1-Dichloroethene (1,1-DCE)	21.9	20.0	109	72 - 129
1,2,4-Trichlorobenzene	17.9	20.0	90	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	18.7	20.0	93	62 - 131
1,2-Dibromoethane	18.1	20.0	91	78 - 125
1,2-Dichlorobenzene	17.6	20.0	88	79 - 124
1,2-Dichloroethane	20.8	20.0	104	73 - 127
1,2-Dichloropropane	19.1	20.0	95	80 - 123
1,3-Dichlorobenzene	18.5	20.0	92	78 - 124
1,4-Dichlorobenzene	17.9	20.0	90	78 - 123
n-Butanol	1210	1010	121	70 - 130
2-Butanone (MEK)	21.8	20.0	109	60 - 133
2-Hexanone	21.4	20.0	107	61 - 131
4-Methyl-2-pentanone	20.8	20.0	104	61 - 132
Acetone	23.5	20.0	117	54 - 139
Benzene	18.1	20.0	91	78 - 121
Bromodichloromethane	18.8	20.0	94	80 - 125
Bromoform	18.2	20.0	91	68 - 130
Bromomethane	16.7	20.0	84	57 - 144
Carbon Disulfide	21.8	20.0	109	52 - 140
Carbon Tetrachloride	20.9	20.0	105	68 - 133
Chlorobenzene	18.5	20.0	92	80 - 121
Chloroethane	18.9	20.0	95	71 - 130
Chloroform	20.8	20.0	104	78 - 125
Chloromethane	19.4	20.0	97	61 - 138
Cyclohexane	19.5	20.0	98	57 - 126
Dibromochloromethane	18.7	20.0	94	78 - 133
Dichlorodifluoromethane (CFC 12)	17.3	20.0	86	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED C34 FO0552B 7/19/12
Sample Matrix: Water

Service Request: R1204678
Date Analyzed: 7/23/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 301385

Lab Control Sample
RQ1208295-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.5	20.0	97	75 - 125
Ethylbenzene	18.5	20.0	92	78 - 123
Isopropylbenzene (Cumene)	18.9	20.0	95	73 - 133
Methyl Acetate	21.7	20.0	109	57 - 157
Methyl tert-Butyl Ether	19.9	20.0	100	75 - 126
Methylcyclohexane	20.1	20.0	100	61 - 125
Styrene	18.0	20.0	90	80 - 132
Tetrachloroethene (PCE)	18.1	20.0	90	72 - 131
Toluene	18.0	20.0	90	78 - 122
Trichloroethene (TCE)	18.8	20.0	94	74 - 127
Trichlorofluoromethane (CFC 11)	21.1	20.0	105	69 - 141
Vinyl Chloride	19.7	20.0	99	72 - 138
cis-1,2-Dichloroethene	19.5	20.0	97	78 - 122
cis-1,3-Dichloropropene	18.5	20.0	93	77 - 125
m,p-Xylenes	37.8	40.0	94	79 - 126
n-Butyl Acetate	21.2	20.0	106	31 - 144
o-Xylene	18.4	20.0	92	77 - 118
trans-1,2-Dichloroethene	19.5	20.0	98	75 - 121
trans-1,3-Dichloropropene	18.4	20.0	92	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED C34 FO0552B 7/19/12
Sample Matrix: Water

Service Request: R1204678
Date Analyzed: 7/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 301592

Lab Control Sample
RQ1208382-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.1	20.0	86	72 - 128
1,1,2,2-Tetrachloroethane	18.6	20.0	93	72 - 131
1,1,2-Trichloroethane	20.0	20.0	100	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	15.5	20.0	77	68 - 136
1,1-Dichloroethane (1,1-DCA)	20.2	20.0	101	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.2	20.0	91	72 - 129
1,2,4-Trichlorobenzene	15.9	20.0	80	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	16.8	20.0	84	62 - 131
1,2-Dibromoethane	18.7	20.0	94	78 - 125
1,2-Dichlorobenzene	16.5	20.0	83	79 - 124
1,2-Dichloroethane	21.7	20.0	109	73 - 127
1,2-Dichloropropane	19.3	20.0	96	80 - 123
1,3-Dichlorobenzene	16.4	20.0	82	78 - 124
1,4-Dichlorobenzene	16.7	20.0	84	78 - 123
n-Butanol	1220	1010	121	70 - 130
2-Butanone (MEK)	21.4	20.0	107	60 - 133
2-Hexanone	21.8	20.0	109	61 - 131
4-Methyl-2-pentanone	21.2	20.0	106	61 - 132
Acetone	24.1	20.0	120	54 - 139
Benzene	16.8	20.0	84	78 - 121
Bromodichloromethane	19.6	20.0	98	80 - 125
Bromoform	17.4	20.0	87	68 - 130
Bromomethane	15.6	20.0	78	57 - 144
Carbon Disulfide	20.5	20.0	103	52 - 140
Carbon Tetrachloride	17.1	20.0	85	68 - 133
Chlorobenzene	17.2	20.0	86	80 - 121
Chloroethane	18.2	20.0	91	71 - 130
Chloroform	20.0	20.0	100	78 - 125
Chloromethane	17.4	20.0	87	61 - 138
Cyclohexane	18.5	20.0	93	57 - 126
Dibromochloromethane	18.1	20.0	90	78 - 133
Dichlorodifluoromethane (CFC 12)	12.4	20.0	62	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED C34 FO0552B 7/19/12
Sample Matrix: Water

Service Request: R1204678
Date Analyzed: 7/24/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 301592

Lab Control Sample
RQ1208382-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.3	20.0	97	75 - 125
Ethylbenzene	16.3	20.0	81	78 - 123
Isopropylbenzene (Cumene)	16.0	20.0	80	73 - 133
Methyl Acetate	22.3	20.0	111	57 - 157
Methyl tert-Butyl Ether	19.7	20.0	99	75 - 126
Methylcyclohexane	19.1	20.0	95	61 - 125
Styrene	17.1	20.0	85	80 - 132
Tetrachloroethene (PCE)	15.2	20.0	76	72 - 131
Toluene	16.4	20.0	82	78 - 122
Trichloroethene (TCE)	16.8	20.0	84	74 - 127
Trichlorofluoromethane (CFC 11)	15.9	20.0	79	69 - 141
Vinyl Chloride	16.3	20.0	82	72 - 138
cis-1,2-Dichloroethene	18.9	20.0	95	78 - 122
cis-1,3-Dichloropropene	18.0	20.0	90	77 - 125
m,p-Xylenes	33.4	40.0	83	79 - 126
n-Butyl Acetate	21.3	20.0	107	31 - 144
o-Xylene	17.5	20.0	87	77 - 118
trans-1,2-Dichloroethene	17.9	20.0	90	75 - 121
trans-1,3-Dichloropropene	18.3	20.0	92	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** FO0552B

Project Manager: Rebecca Daprato **Company:** Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Ste. 3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate									REMARKS
LC34-RW0007-038.5-20120719	7/19/2012	1024	-001	W	3	3									
LC34-RW0008-052.0-20120719	7/19/2012	1106	-002	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: FO0552B

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1204678 5
GeoSyntec Consultants
ESTCP PED :C34 FO0552B 7/19/12

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Joseph Bartlett	Printed Name:	Printed Name:	Printed Name: Gregory O. Esmerian
Firm: Geosyntec	Firm:	Firm:	Firm: ALS
Date/Time: 7/19/12 - 1630	Date/Time:	Date/Time:	Date/Time: 7-20-12 9:30

Cooler Receipt and Preservation Check Form

Project/Client Geosyntec Folder Number R1204678

Cooler received on 7-20-12 by: KE COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	(YES) *	NO	N/A		
5.	Were Ice or Ice packs present?	(YES)	NO			
6.	Where did the bottles originate?	(ALS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	3.3°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 7-20-12 @ 9:38

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition &Client Approval to Run Samples:

All Samples held in storage location R-002 by KE on 7-20-12 at 9:40

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: KB 7/20/12

Cooler Breakdown: Date: 7/20/12 Time: 1216 by: DR

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received *	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 8-059-02, H-194-001

Other Comments:

* RW0007, and RW0008 each have one vial with significant headspace KE 7-20-12

PC Secondary Review: KB 8/3/12

*significant air bubbles: VOA > 5-6 mm . WC > 1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

August 31, 2012 Service Request No: R1205418

Dr. Rebecca Daprato
GeoSyntec Consultants
11490 Westheimer
Suite 150
Houston, TX 77077

Laboratory Results for: ESTCP PED LC34 FO0552B 8/16/12

Dear Dr. Daprato:

Enclosed are the results of the sample(s) submitted to our laboratory on August 17, 2012. For your reference, these analyses have been assigned our service request number **R1205418**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Karen.Bunker@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Client:	Geosyntec Consultants	**Service Request No.:**	R1205418
Project:	ESTCP PED LC34/ FO0552B (8/16/12)	**Date Received:**	8/17/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Two (2) water samples were collected by the client on 8/16/12 and were received for analysis at Columbia Analytical Services on 8/17/12 via a national courier The samples were received at a cooler temperature of 4.5°C within the guidelines of 0-6°C. The chain of custody forms were consistent with the samples received.

Volatile Organic Compounds GC/MS

Two (2) water samples were analyzed for a client specific list of Volatile Organics by GC/MS Method 8260C.

The initial calibration criteria was met for these samples. The Continuing Calibration Verification (CCV) did not meet the minimum response factor for Trichloroethene on 8/21/12 and 8/22/12. All data is considered acceptable as the MRL has been verified by the low standard in the calibration.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LCSD) recoveries were all within QC limits.

The samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks from 8/22/12 contained a low level hit of Bromomethane and Chloromethane and have been flagged with a "J". No data was affected.

No other analytical or QC problems were encountered.

Approved by _____ **Date** 8/31/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1205418

Lab ID	Client ID
R1205418-001	LC34-RW0007-038.5-20120816
R1205418-002	LC34-RW0008-052.0-20120816

Florida DEP Data Qualifiers

B Results based upon colony counts outside the acceptable range.

D Measurement was made in the field.

H Value based on field kit determination; results may not be accurate.

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

J Estimated value (one of the following reasons is discussed in the project case narrative).
1. The result may be inaccurate because the surrogate recovery limits have been exceeded.
2. No known quality control criteria exists for the component.
3. The reported value failed to meet the established quality control criteria for either precision or accuracy.
4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD).
5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).

K Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).

L Off scale high. The analyte is above the upper limit of the linear calibration range.

M The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.

N Presumptive evidence of the analyte. Confirmation was not performed.

Q Sample held beyond the accepted holding time.

T Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.

U Indicates that the compound was analyzed for but not detected.

V Indicates that the analyte was detected in both the sample and the associated method blank.

Y The laboratory analysis was from an improperly preserved sample.

Z Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	8/16/12 1305
Sample Matrix:	Water	**Date Received:**	8/17/12
		Date Analyzed:	8/22/12 12:35
Sample Name:	LC34-RW0007-038.5-20120816	**Units:**	µg/L
Lab Code:	R1205418-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	306125
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\082212\F8855.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	18	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	13	
79-00-5	1,1,2-Trichloroethane	250	U	250	17	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**8700**		250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	29	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	12	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	37	
106-93-4	1,2-Dibromoethane	250	U	250	12	
95-50-1	1,2-Dichlorobenzene	250	U	250	11	
107-06-2	1,2-Dichloroethane	250	U	250	18	
78-87-5	1,2-Dichloropropane	250	U	250	10	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	870	
78-93-3	2-Butanone (MEK)	500	U	500	41	
591-78-6	2-Hexanone	500	U	500	83	
108-10-1	4-Methyl-2-pentanone	500	U	500	34	
67-64-1	Acetone	500	U	500	62	
71-43-2	Benzene	250	U	250	10	
75-27-4	Bromodichloromethane	250	U	250	16	
75-25-2	Bromoform	250	U	250	21	
74-83-9	Bromomethane	250	U	250	15	
75-15-0	Carbon Disulfide	**37**	I	500	11	
56-23-5	Carbon Tetrachloride	250	U	250	23	
108-90-7	Chlorobenzene	250	U	250	15	
75-00-3	Chloroethane	250	U	250	12	
67-66-3	Chloroform	250	U	250	13	
74-87-3	Chloromethane	250	U	250	11	
110-82-7	Cyclohexane	500	U	500	13	
124-48-1	Dibromochloromethane	250	U	250	16	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	23	
75-09-2	Dichloromethane	250	U	250	16	
100-41-4	Ethylbenzene	250	U	250	10	
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	8/16/12 1305
Sample Matrix:	Water	**Date Received:**	8/17/12
		Date Analyzed:	8/22/12 12:35
Sample Name:	LC34-RW0007-038.5-20120816	**Units:**	µg/L
Lab Code:	R1205418-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	306125
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\082212\F8855.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	500	U	500	22	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	15	
108-87-2	Methylcyclohexane	500	U	500	14	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	15	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	**660**		250	11	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**7400**		250	16	
156-59-2	cis-1,2-Dichloroethene	**4300**		250	15	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	12	
179601-23-1	m,p-Xylenes	250	U	250	17	
123-86-4	n-Butyl Acetate	250	U	250	20	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**190**	I	250	17	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	8/22/12 12:35	
Dibromofluoromethane	105	89-119	8/22/12 12:35	
Toluene-d8	105	87-121	8/22/12 12:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	8/16/12 1332
Sample Matrix:	Water	**Date Received:**	8/17/12
Sample Name:	LC34-RW0008-052.0-20120816	**Units:**	µg/L
Lab Code:	R1205418-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.8	5	NA	8/21/12 15:57		305910	
1,1,2,2-Tetrachloroethane	25	U	25	1.3	5	NA	8/21/12 15:57		305910	
1,1,2-Trichloroethane	25	U	25	1.8	5	NA	8/21/12 15:57		305910	
1,1,2-Trichloro-1,2,2-trifluoroethane	**1100**		50	3.1	10	NA	8/22/12 13:03		306125	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
1,1-Dichloroethene (1,1-DCE)	25	U	25	2.9	5	NA	8/21/12 15:57		305910	
1,2,4-Trichlorobenzene	25	U	25	1.2	5	NA	8/21/12 15:57		305910	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	3.7	5	NA	8/21/12 15:57		305910	
1,2-Dibromoethane	25	U	25	1.2	5	NA	8/21/12 15:57		305910	
1,2-Dichlorobenzene	25	U	25	1.1	5	NA	8/21/12 15:57		305910	
1,2-Dichloroethane	25	U	25	1.8	5	NA	8/21/12 15:57		305910	
1,2-Dichloropropane	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
n-Butanol	1300	U	1300	87	5	NA	8/21/12 15:57		305910	
2-Butanone (MEK)	50	U	50	4.1	5	NA	8/21/12 15:57		305910	
2-Hexanone	50	U	50	8.3	5	NA	8/21/12 15:57		305910	
4-Methyl-2-pentanone	50	U	50	3.4	5	NA	8/21/12 15:57		305910	
Acetone	**6.5**	I	50	6.2	5	NA	8/21/12 15:57		305910	
Benzene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
Bromodichloromethane	25	U	25	1.6	5	NA	8/21/12 15:57		305910	
Bromoform	25	U	25	2.1	5	NA	8/21/12 15:57		305910	
Bromomethane	25	U	25	1.5	5	NA	8/21/12 15:57		305910	
Carbon Disulfide	**6.7**	I	50	1.1	5	NA	8/21/12 15:57		305910	
Carbon Tetrachloride	25	U	25	2.3	5	NA	8/21/12 15:57		305910	
Chlorobenzene	25	U	25	1.5	5	NA	8/21/12 15:57		305910	
Chloroethane	25	U	25	1.2	5	NA	8/21/12 15:57		305910	
Chloroform	25	U	25	1.3	5	NA	8/21/12 15:57		305910	
Chloromethane	25	U	25	1.1	5	NA	8/21/12 15:57		305910	
Cyclohexane	50	U	50	1.3	5	NA	8/21/12 15:57		305910	
Dibromochloromethane	25	U	25	1.6	5	NA	8/21/12 15:57		305910	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.4	5	NA	8/21/12 15:57		305910	
Dichloromethane	25	U	25	1.6	5	NA	8/21/12 15:57		305910	
Ethylbenzene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
Methyl Acetate	50	U	50	2.2	5	NA	8/21/12 15:57		305910	

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	8/16/12 1332
Sample Matrix:	Water	**Date Received:**	8/17/12
Sample Name:	LC34-RW0008-052.0-20120816	**Units:**	µg/L
Lab Code:	R1205418-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.5	5	NA	8/21/12 15:57		305910	
Methylcyclohexane	50	U	50	1.4	5	NA	8/21/12 15:57		305910	
Styrene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
Tetrachloroethene (PCE)	25	U	25	1.5	5	NA	8/21/12 15:57		305910	
Toluene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
Trichloroethene (TCE)	**460**		25	1.1	5	NA	8/21/12 15:57		305910	
Trichlorofluoromethane (CFC 11)	**4.2**	I	25	1.0	5	NA	8/21/12 15:57		305910	
Vinyl Chloride	**600**		25	1.6	5	NA	8/21/12 15:57		305910	
cis-1,2-Dichloroethene	**700**		25	1.5	5	NA	8/21/12 15:57		305910	
cis-1,3-Dichloropropene	25	U	25	1.2	5	NA	8/21/12 15:57		305910	
m,p-Xylenes	25	U	25	1.7	5	NA	8/21/12 15:57		305910	
n-Butyl Acetate	25	U	25	2.0	5	NA	8/21/12 15:57		305910	
o-Xylene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	
trans-1,2-Dichloroethene	**13**	I	25	1.7	5	NA	8/21/12 15:57		305910	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	8/21/12 15:57		305910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/21/12 15:57	
Dibromofluoromethane	106	89-119	8/21/12 15:57	
Toluene-d8	107	87-121	8/21/12 15:57	

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/21/12 11:14
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1209716-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	305910
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\082112\F8801.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/21/12 11:14
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1209716-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	305910
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\082112\F8801.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	8/21/12 11:14	
Dibromofluoromethane	105	89-119	8/21/12 11:14	
Toluene-d8	104	87-121	8/21/12 11:14	

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/22/12 11:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1209792-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	306125
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\082212\F8852.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	**0.33**	I	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	**0.39**	I	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1205418
Project:	ESTCP PED LC34 FO0552B 8/16/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	8/22/12 11:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1209792-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	306125
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\082212\F8852.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	8/22/12 11:10	
Dibromofluoromethane	104	89-119	8/22/12 11:10	
Toluene-d8	104	87-121	8/22/12 11:10	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 8/16/12
Sample Matrix: Water

Service Request: R1205418
Date Analyzed: 8/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 305910

Lab Control Sample
RQ1209716-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.8	20.0	89	72 - 128
1,1,2,2-Tetrachloroethane	20.0	20.0	100	72 - 131
1,1,2-Trichloroethane	19.6	20.0	98	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	16.1	20.0	81	68 - 136
1,1-Dichloroethane (1,1-DCA)	18.8	20.0	94	76 - 124
1,1-Dichloroethene (1,1-DCE)	18.1	20.0	90	72 - 129
1,2,4-Trichlorobenzene	17.4	20.0	87	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.4	20.0	97	62 - 131
1,2-Dibromoethane	20.3	20.0	102	78 - 125
1,2-Dichlorobenzene	18.5	20.0	93	79 - 124
1,2-Dichloroethane	21.8	20.0	109	73 - 127
1,2-Dichloropropane	17.7	20.0	89	80 - 123
1,3-Dichlorobenzene	17.9	20.0	89	78 - 124
1,4-Dichlorobenzene	18.5	20.0	92	78 - 123
n-Butanol	1180	1010	117	70 - 130
2-Butanone (MEK)	20.2	20.0	101	60 - 133
2-Hexanone	20.0	20.0	100	61 - 131
4-Methyl-2-pentanone	20.8	20.0	104	61 - 132
Acetone	20.6	20.0	103	54 - 139
Benzene	17.5	20.0	87	78 - 121
Bromodichloromethane	20.1	20.0	101	80 - 125
Bromoform	18.8	20.0	94	68 - 130
Bromomethane	17.7	20.0	88	57 - 144
Carbon Disulfide	17.1	20.0	86	52 - 140
Carbon Tetrachloride	18.2	20.0	91	68 - 133
Chlorobenzene	18.6	20.0	93	80 - 121
Chloroethane	17.8	20.0	89	71 - 130
Chloroform	19.8	20.0	99	78 - 125
Chloromethane	16.0	20.0	80	61 - 138
Cyclohexane	14.6	20.0	73	57 - 126
Dibromochloromethane	20.7	20.0	104	78 - 133
Dichlorodifluoromethane (CFC 12)	16.9	20.0	84	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 8/16/12
Sample Matrix: Water

Service Request: R1205418
Date Analyzed: 8/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 305910

Analyte Name	Lab Control Sample RQ1209716-04 Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.2	20.0	96	75 - 125
Ethylbenzene	17.5	20.0	88	78 - 123
Isopropylbenzene (Cumene)	16.3	20.0	82	73 - 133
Methyl Acetate	18.2	20.0	91	57 - 157
Methyl tert-Butyl Ether	22.6	20.0	113	75 - 126
Methylcyclohexane	16.0	20.0	80	61 - 125
Styrene	18.8	20.0	94	80 - 132
Tetrachloroethene (PCE)	16.8	20.0	84	72 - 131
Toluene	17.6	20.0	88	78 - 122
Trichloroethene (TCE)	16.7	20.0	84	74 - 127
Trichlorofluoromethane (CFC 11)	18.9	20.0	95	69 - 141
Vinyl Chloride	18.3	20.0	92	72 - 138
cis-1,2-Dichloroethene	18.5	20.0	92	78 - 122
cis-1,3-Dichloropropene	18.4	20.0	92	77 - 125
m,p-Xylenes	35.7	40.0	89	79 - 126
n-Butyl Acetate	20.1	20.0	101	31 - 144
o-Xylene	18.4	20.0	92	77 - 118
trans-1,2-Dichloroethene	17.7	20.0	89	75 - 121
trans-1,3-Dichloropropene	19.8	20.0	99	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 8/16/12
Sample Matrix: Water

Service Request: R1205418
Date Analyzed: 8/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 306125

Lab Control Sample
RQ1209792-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.7	20.0	98	72 - 128
1,1,2,2-Tetrachloroethane	19.9	20.0	99	72 - 131
1,1,2-Trichloroethane	19.7	20.0	98	80 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	17.5	20.0	87	68 - 136
1,1-Dichloroethane (1,1-DCA)	20.0	20.0	100	76 - 124
1,1-Dichloroethene (1,1-DCE)	19.5	20.0	98	72 - 129
1,2,4-Trichlorobenzene	17.5	20.0	87	70 - 133
1,2-Dibromo-3-chloropropane (DBCP)	19.4	20.0	97	62 - 131
1,2-Dibromoethane	20.6	20.0	103	78 - 125
1,2-Dichlorobenzene	19.4	20.0	97	79 - 124
1,2-Dichloroethane	22.9	20.0	114	73 - 127
1,2-Dichloropropane	19.2	20.0	96	80 - 123
1,3-Dichlorobenzene	18.8	20.0	94	78 - 124
1,4-Dichlorobenzene	19.4	20.0	97	78 - 123
n-Butanol	1110	1010	110	70 - 130
2-Butanone (MEK)	19.6	20.0	98	60 - 133
2-Hexanone	20.3	20.0	101	61 - 131
4-Methyl-2-pentanone	20.3	20.0	101	61 - 132
Acetone	18.1	20.0	91	54 - 139
Benzene	18.5	20.0	92	78 - 121
Bromodichloromethane	21.2	20.0	106	80 - 125
Bromoform	19.4	20.0	97	68 - 130
Bromomethane	20.4	20.0	102	57 - 144
Carbon Disulfide	18.6	20.0	93	52 - 140
Carbon Tetrachloride	20.5	20.0	103	68 - 133
Chlorobenzene	19.6	20.0	98	80 - 121
Chloroethane	18.7	20.0	93	71 - 130
Chloroform	20.9	20.0	105	78 - 125
Chloromethane	18.8	20.0	94	61 - 138
Cyclohexane	16.1	20.0	81	57 - 126
Dibromochloromethane	21.3	20.0	106	78 - 133
Dichlorodifluoromethane (CFC 12)	19.0	20.0	95	45 - 159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B 8/16/12
Sample Matrix: Water

Service Request: R1205418
Date Analyzed: 8/22/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 306125

Lab Control Sample
RQ1209792-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.9	20.0	100	75 - 125
Ethylbenzene	18.9	20.0	95	78 - 123
Isopropylbenzene (Cumene)	17.7	20.0	88	73 - 133
Methyl Acetate	18.2	20.0	91	57 - 157
Methyl tert-Butyl Ether	23.0	20.0	115	75 - 126
Methylcyclohexane	18.1	20.0	91	61 - 125
Styrene	19.9	20.0	99	80 - 132
Tetrachloroethene (PCE)	18.2	20.0	91	72 - 131
Toluene	18.6	20.0	93	78 - 122
Trichloroethene (TCE)	18.2	20.0	91	74 - 127
Trichlorofluoromethane (CFC 11)	21.2	20.0	106	69 - 141
Vinyl Chloride	19.9	20.0	99	72 - 138
cis-1,2-Dichloroethene	19.4	20.0	97	78 - 122
cis-1,3-Dichloropropene	19.2	20.0	96	77 - 125
m,p-Xylenes	38.7	40.0	97	79 - 126
n-Butyl Acetate	20.6	20.0	103	31 - 144
o-Xylene	19.5	20.0	97	77 - 118
trans-1,2-Dichloroethene	18.8	20.0	94	75 - 121
trans-1,3-Dichloropropene	20.2	20.0	101	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** FO0552B

Project Manager: Rebecca Daprato **Company:** Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Ste. 3 **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate									REMARKS
LC34-RW0007-038.5-20120816	8/16/12	1305	-001	W	3	3									
LC34-RW0008-052.0-20120816	8/16/12	1332	-002	W	3	3									

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. #

Bill to: FO0552B

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1205418 5
GeoSyntec Consultants
ESTCP PED LC34 FO0552B 8/16/12

Page 18 of 46

RELINQUISHED BY:

Signature:

Printed Name: JOSEPH BARTLETT

Firm: GEOSYNTEC

Date/Time: 8/16/12 – 1630

RECEIVED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RELINQUISHED BY:

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY:

Signature:

Printed Name: Amy Hentschke

Firm: ALS

Date/Time: 8/17/12 0925

Cooler Receipt and Preservation Check Form

Project/Client GeoSyntec Folder Number R2053418

Cooler received on 8/17/12 by: AHH COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were Ice or Ice packs present?	(YES)	NO			
6.	Where did the bottles originate?	(ALS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	4.5°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 8/17/12 0937

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition & Client Approval to Run Samples:

All Samples held in storage location R-002 by AHH on 8/17/12 at 0939

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: [illegible] 8/17/12

Cooler Breakdown: Date: 8/17/12 Time: 1340 by: AHH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	covered by client label AHH 8/17/12					

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: covered by client label

Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

September 27, 2012 Service Request No: R1206035

Dr. Rebecca Daprato
GeoSyntec Consultants
11490 Westheimer
Suite 150
Houston, TX 77077

Laboratory Results for: ESTCP PED LC34 FO0552B

Dear Dr. Daprato:

Enclosed are the results of the sample(s) submitted to our laboratory on September 12, 2012. For your reference, these analyses have been assigned our service request number **R1206035**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Karen.Bunker@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

Client:	Geosyntec Consultants	**Service Request No.:**	R1206035
Project:	ESTCP PED LC34/ FO552B (9/11/12)	**Date Received:**	9/12/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Eight (8) water samples were collected by the client on 9/11/12 and were received for analysis at Columbia Analytical Services on 7/20/12 via a national courier The samples were received at a cooler temperature of 3.3°C within the guidelines of 0-6°C. The chain of custody forms were consistent with the samples received.

Volatile Organic Compounds GC/MS

Eight (8) water samples were analyzed for a client specific list of Volatile Organics by GC/MS Method 8260C and Dissolved Gases by GC method RSK-175.

The initial calibration criteria was met for these samples. The Continuing Calibration Verification (CCV) %D for Bromomethane was outside the 20% limit on the 9/13/12 run. Any hits for this compound on the associated run should be considered as estimated, however the samples were non-detect for this compound and therefore unaffected.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LCSD) recoveries were all within QC limits.

The samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for 1,2,4-Trichlorobenzene and Bromomethane on the 9/13/12 and 9/17/12 8260C runs. Affected data is flagged as "V".

No other analytical or QC problems were encountered.

Approved by Karen Beebe **Date** 9/27/12

Inorganic Parameters

Eight (8) samples were analyzed for TOC by method 9060A. The average of 4 runs are reported for each sample.

All Initial and Continuing Calibration criteria was met.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were acceptable.

The samples were run within holding time.

No problems were encountered during the analysis of these samples.

Approved by Karen Burke **Date** 9/27/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1206035

Lab ID	Client ID
R1206035-001	LC34-BW0002A-024.5-20120911
R1206035-002	LC34-BW0002B-031.5-20120911
R1206035-003	LC34-BW0002C-038.5-20120911
R1206035-004	LC34-BW0002D-045.5-20120911
R1206035-005	LC34-BW0002E-052.5-20120911
R1206035-006	LC34-BW0002F-059.5-20120911
R1206035-007	LC34-BW0003A-024.5-20120911
R1206035-008	LC34-BW0003B-031.5-20120911

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0907
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002A-024.5-20120911		
Lab Code:	R1206035-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.5**		mg/L	1.0	1	NA	9/17/12 19:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0907
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/14/12 00:01
Sample Name:	LC34-BW0002A-024.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1383.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**60**		5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	**0.29**	IV	5.0	0.29	
75-15-0	Carbon Disulfide	**0.22**	I	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0907
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/14/12 00:01
Sample Name:	LC34-BW0002A-024.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1383.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**5.6**		5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**130**		5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	**49**		5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**13**		5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/14/12 00:01	
Dibromofluoromethane	103	89-119	9/14/12 00:01	
Toluene-d8	100	87-121	9/14/12 00:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0907
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/18/12 10:28
Sample Name:	LC34-BW0002A-024.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310015
Data File Name:	star040.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	**42**		1.0	
74-82-8	Methane	**39**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0945
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002B-031.5-20120911		
Lab Code:	R1206035-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.7**		mg/L	1.0	1	NA	9/17/12 20:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0945
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 18:08
Sample Name:	LC34-BW0002B-031.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1439.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	13	U	13	0.90	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	13	0.63	
79-00-5	1,1,2-Trichloroethane	13	U	13	0.86	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**36**		13	0.78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	13	U	13	0.50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	13	U	13	1.5	
120-82-1	1,2,4-Trichlorobenzene	13	U	13	0.58	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.9	
106-93-4	1,2-Dibromoethane	13	U	13	0.60	
95-50-1	1,2-Dichlorobenzene	13	U	13	0.53	
107-06-2	1,2-Dichloroethane	13	U	13	0.90	
78-87-5	1,2-Dichloropropane	13	U	13	0.50	
541-73-1	1,3-Dichlorobenzene	13	U	13	0.50	
106-46-7	1,4-Dichlorobenzene	13	U	13	0.50	
71-36-3	n-Butanol	630	U	630	44	
78-93-3	2-Butanone (MEK)	25	U	25	2.1	
591-78-6	2-Hexanone	25	U	25	4.2	
108-10-1	4-Methyl-2-pentanone	25	U	25	1.7	
67-64-1	Acetone	25	U	25	3.1	
71-43-2	Benzene	13	U	13	0.50	
75-27-4	Bromodichloromethane	13	U	13	0.80	
75-25-2	Bromoform	13	U	13	1.1	
74-83-9	Bromomethane	**1.1**	IV	13	0.73	
75-15-0	Carbon Disulfide	25	U	25	0.55	
56-23-5	Carbon Tetrachloride	13	U	13	1.2	
108-90-7	Chlorobenzene	13	U	13	0.73	
75-00-3	Chloroethane	13	U	13	0.60	
67-66-3	Chloroform	13	U	13	0.63	
74-87-3	Chloromethane	13	U	13	0.53	
110-82-7	Cyclohexane	25	U	25	0.63	
124-48-1	Dibromochloromethane	13	U	13	0.78	
75-71-8	Dichlorodifluoromethane (CFC 12)	13	U	13	1.2	
75-09-2	Dichloromethane	13	U	13	0.80	
100-41-4	Ethylbenzene	13	U	13	0.50	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0945
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 18:08
Sample Name:	LC34-BW0002B-031.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1439.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	13	U	13	0.50	
79-20-9	Methyl Acetate	25	U	25	1.1	
1634-04-4	Methyl tert-Butyl Ether	13	U	13	0.73	
108-87-2	Methylcyclohexane	25	U	25	0.68	
100-42-5	Styrene	13	U	13	0.50	
127-18-4	Tetrachloroethene (PCE)	13	U	13	0.75	
108-88-3	Toluene	13	U	13	0.50	
79-01-6	Trichloroethene (TCE)	**9.8**	I	13	0.55	
75-69-4	Trichlorofluoromethane (CFC 11)	13	U	13	0.50	
75-01-4	Vinyl Chloride	**330**		13	0.80	
156-59-2	cis-1,2-Dichloroethene	**170**		13	0.75	
10061-01-5	cis-1,3-Dichloropropene	13	U	13	0.60	
179601-23-1	m,p-Xylenes	13	U	13	0.83	
123-86-4	n-Butyl Acetate	13	U	13	0.98	
95-47-6	o-Xylene	13	U	13	0.50	
156-60-5	trans-1,2-Dichloroethene	**23**		13	0.83	
10061-02-6	trans-1,3-Dichloropropene	13	U	13	0.50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/17/12 18:08	
Dibromofluoromethane	100	89-119	9/17/12 18:08	
Toluene-d8	99	87-121	9/17/12 18:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 0945
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/18/12 10:50
Sample Name:	LC34-BW0002B-031.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310015
Data File Name:	star042.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	2.0	U	2.0	
74-85-1	Ethene	**44**		2.0	
74-82-8	Methane	**140**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1013
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002C-038.5-20120911		
Lab Code:	R1206035-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	77.9		mg/L	4.0	4	NA	9/17/12 22:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1013
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 19:47
Sample Name:	LC34-BW0002C-038.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1442.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	36	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	25	
79-00-5	1,1,2-Trichloroethane	500	U	500	34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	57	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	74	
106-93-4	1,2-Dibromoethane	500	U	500	24	
95-50-1	1,2-Dichlorobenzene	500	U	500	21	
107-06-2	1,2-Dichloroethane	500	U	500	36	
78-87-5	1,2-Dichloropropane	500	U	500	20	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1800	
78-93-3	2-Butanone (MEK)	1000	U	1000	81	
591-78-6	2-Hexanone	1000	U	1000	170	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	67	
67-64-1	Acetone	1000	U	1000	130	
71-43-2	Benzene	500	U	500	20	
75-27-4	Bromodichloromethane	500	U	500	32	
75-25-2	Bromoform	500	U	500	42	
74-83-9	Bromomethane	**30**	I	500	29	
75-15-0	Carbon Disulfide	1000	U	1000	22	
56-23-5	Carbon Tetrachloride	500	U	500	45	
108-90-7	Chlorobenzene	500	U	500	29	
75-00-3	Chloroethane	500	U	500	24	
67-66-3	Chloroform	500	U	500	25	
74-87-3	Chloromethane	500	U	500	21	
110-82-7	Cyclohexane	1000	U	1000	25	
124-48-1	Dibromochloromethane	500	U	500	31	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	46	
75-09-2	Dichloromethane	500	U	500	32	
100-41-4	Ethylbenzene	500	U	500	20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1013
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 19:47
Sample Name:	LC34-BW0002C-038.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1442.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	43	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	29	
108-87-2	Methylcyclohexane	1000	U	1000	27	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	30	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	500	U	500	22	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**11000**		500	32	
156-59-2	cis-1,2-Dichloroethene	**11000**		500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	24	
179601-23-1	m,p-Xylenes	500	U	500	33	
123-86-4	n-Butyl Acetate	500	U	500	39	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**280**	I	500	33	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/17/12 19:47	
Dibromofluoromethane	103	89-119	9/17/12 19:47	
Toluene-d8	99	87-121	9/17/12 19:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1013
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002C-038.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**52**		10	10	NA	9/18/12 11:03		310015	
Ethene	**890**		10	10	NA	9/18/12 11:03		310015	
Methane	**1800**		25	25	NA	9/18/12 13:19		310015	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1151
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002D-045.5-20120911		
Lab Code:	R1206035-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	87		mg/L	10	10	NA	9/17/12 22:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1151
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 19:14
Sample Name:	LC34-BW0002D-045.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1441.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	250	U	250	18	
79-34-5	1,1,2,2-Tetrachloroethane	250	U	250	13	
79-00-5	1,1,2-Trichloroethane	250	U	250	17	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	250	U	250	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	250	U	250	29	
120-82-1	1,2,4-Trichlorobenzene	250	U	250	12	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	250	U	250	37	
106-93-4	1,2-Dibromoethane	250	U	250	12	
95-50-1	1,2-Dichlorobenzene	250	U	250	11	
107-06-2	1,2-Dichloroethane	250	U	250	18	
78-87-5	1,2-Dichloropropane	250	U	250	10	
541-73-1	1,3-Dichlorobenzene	250	U	250	10	
106-46-7	1,4-Dichlorobenzene	250	U	250	10	
71-36-3	n-Butanol	13000	U	13000	870	
78-93-3	2-Butanone (MEK)	500	U	500	41	
591-78-6	2-Hexanone	500	U	500	83	
108-10-1	4-Methyl-2-pentanone	500	U	500	34	
67-64-1	Acetone	500	U	500	62	
71-43-2	Benzene	250	U	250	10	
75-27-4	Bromodichloromethane	250	U	250	16	
75-25-2	Bromoform	250	U	250	21	
74-83-9	Bromomethane	**17**	I	250	15	
75-15-0	Carbon Disulfide	500	U	500	11	
56-23-5	Carbon Tetrachloride	250	U	250	23	
108-90-7	Chlorobenzene	250	U	250	15	
75-00-3	Chloroethane	250	U	250	12	
67-66-3	Chloroform	250	U	250	13	
74-87-3	Chloromethane	250	U	250	11	
110-82-7	Cyclohexane	500	U	500	13	
124-48-1	Dibromochloromethane	250	U	250	16	
75-71-8	Dichlorodifluoromethane (CFC 12)	250	U	250	23	
75-09-2	Dichloromethane	250	U	250	16	
100-41-4	Ethylbenzene	250	U	250	10	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1151
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 19:14
Sample Name:	LC34-BW0002D-045.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1441.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	250	U	250	10	
79-20-9	Methyl Acetate	500	U	500	22	
1634-04-4	Methyl tert-Butyl Ether	250	U	250	15	
108-87-2	Methylcyclohexane	500	U	500	14	
100-42-5	Styrene	250	U	250	10	
127-18-4	Tetrachloroethene (PCE)	250	U	250	15	
108-88-3	Toluene	250	U	250	10	
79-01-6	Trichloroethene (TCE)	250	U	250	11	
75-69-4	Trichlorofluoromethane (CFC 11)	250	U	250	10	
75-01-4	Vinyl Chloride	**9100**		250	16	
156-59-2	cis-1,2-Dichloroethene	**40**	I	250	15	
10061-01-5	cis-1,3-Dichloropropene	250	U	250	12	
179601-23-1	m,p-Xylenes	250	U	250	17	
123-86-4	n-Butyl Acetate	250	U	250	20	
95-47-6	o-Xylene	250	U	250	10	
156-60-5	trans-1,2-Dichloroethene	**79**	I	250	17	
10061-02-6	trans-1,3-Dichloropropene	250	U	250	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	9/17/12 19:14	
Dibromofluoromethane	104	89-119	9/17/12 19:14	
Toluene-d8	98	87-121	9/17/12 19:14	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1151
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/18/12 13:38
Sample Name:	LC34-BW0002D-045.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310015
Data File Name:	star052.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**36**		20	
74-85-1	Ethene	**1000**		20	
74-82-8	Methane	**1600**		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1122
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002E-052.5-20120911		
Lab Code:	R1206035-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**4.9**		mg/L	1.0	1	NA	9/17/12 23:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1122
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/13/12 22:55
Sample Name:	LC34-BW0002E-052.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1381.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**0.37**	I	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	**0.73**	I	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1122
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/13/12 22:55
Sample Name:	LC34-BW0002E-052.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1381.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**2.6**	I	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**23**		5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	**8.1**		5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**1.2**	I	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/13/12 22:55	
Dibromofluoromethane	102	89-119	9/13/12 22:55	
Toluene-d8	101	87-121	9/13/12 22:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1122
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/18/12 11:15
Sample Name:	LC34-BW0002E-052.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310015
Data File Name:	star044.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**3.4**		2.0	
74-85-1	Ethene	**160**		2.0	
74-82-8	Methane	77		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1048
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002F-059.5-20120911		
Lab Code:	R1206035-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.3**		mg/L	1.0	1	NA	9/17/12 00:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1048
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/13/12 23:28
Sample Name:	LC34-BW0002F-059.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1382.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**0.81**	I	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	**1.8**	I	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1048
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/13/12 23:28
Sample Name:	LC34-BW0002F-059.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1382.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**6.4**		5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**130**		5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	**40**		5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**5.1**		5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	9/13/12 23:28	
Dibromofluoromethane	106	89-119	9/13/12 23:28	
Toluene-d8	100	87-121	9/13/12 23:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1048
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0002F-059.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-006	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**1.6**		1.0	1	NA	9/18/12 11:26		310015	
Ethene	**110**		2.0	2	NA	9/18/12 11:36		310015	
Methane	**22**		1.0	1	NA	9/18/12 11:26		310015	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1318
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0003A-024.5-20120911		
Lab Code:	R1206035-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.3**		mg/L	1.0	1	NA	9/18/12 00:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1318
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 18:41
Sample Name:	LC34-BW0003A-024.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1440.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	2.5	
79-00-5	1,1,2-Trichloroethane	50	U	50	3.5	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**690**		50	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	5.7	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	2.4	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	7.4	
106-93-4	1,2-Dibromoethane	50	U	50	2.4	
95-50-1	1,2-Dichlorobenzene	50	U	50	2.1	
107-06-2	1,2-Dichloroethane	50	U	50	3.6	
78-87-5	1,2-Dichloropropane	50	U	50	2.0	
541-73-1	1,3-Dichlorobenzene	50	U	50	2.0	
106-46-7	1,4-Dichlorobenzene	50	U	50	2.0	
71-36-3	n-Butanol	2500	U	2500	180	
78-93-3	2-Butanone (MEK)	100	U	100	8.2	
591-78-6	2-Hexanone	100	U	100	17	
108-10-1	4-Methyl-2-pentanone	100	U	100	6.7	
67-64-1	Acetone	**26**	I	100	13	
71-43-2	Benzene	50	U	50	2.0	
75-27-4	Bromodichloromethane	50	U	50	3.2	
75-25-2	Bromoform	50	U	50	4.2	
74-83-9	Bromomethane	**4.9**	I	50	2.9	
75-15-0	Carbon Disulfide	100	U	100	2.2	
56-23-5	Carbon Tetrachloride	50	U	50	4.5	
108-90-7	Chlorobenzene	50	U	50	2.9	
75-00-3	Chloroethane	50	U	50	2.4	
67-66-3	Chloroform	50	U	50	2.5	
74-87-3	Chloromethane	50	U	50	2.1	
110-82-7	Cyclohexane	100	U	100	2.5	
124-48-1	Dibromochloromethane	50	U	50	3.1	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	4.7	
75-09-2	Dichloromethane	50	U	50	3.2	
100-41-4	Ethylbenzene	50	U	50	2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1318
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/17/12 18:41
Sample Name:	LC34-BW0003A-024.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1440.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	50	U	50	2.0	
79-20-9	Methyl Acetate	100	U	100	4.3	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	2.9	
108-87-2	Methylcyclohexane	100	U	100	2.7	
100-42-5	Styrene	50	U	50	2.0	
127-18-4	Tetrachloroethene (PCE)	50	U	50	3.0	
108-88-3	Toluene	50	U	50	2.0	
79-01-6	Trichloroethene (TCE)	**2.4**	I	50	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	2.0	
75-01-4	Vinyl Chloride	**210**		50	3.2	
156-59-2	cis-1,2-Dichloroethene	**1600**		50	3.0	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	2.4	
179601-23-1	m,p-Xylenes	50	U	50	3.4	
123-86-4	n-Butyl Acetate	50	U	50	4.0	
95-47-6	o-Xylene	50	U	50	2.0	
156-60-5	trans-1,2-Dichloroethene	**55**		50	3.4	
10061-02-6	trans-1,3-Dichloropropene	50	U	50	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	9/17/12 18:41	
Dibromofluoromethane	102	89-119	9/17/12 18:41	
Toluene-d8	98	87-121	9/17/12 18:41	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1318
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0003A-024.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	1.0	U	1.0	1	NA	9/18/12 11:47		310015	
Ethene	**11**		1.0	1	NA	9/18/12 11:47		310015	
Methane	**110**		2.0	2	NA	9/18/12 12:51		310015	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1342
Sample Matrix:	Water	**Date Received:**	9/12/12
Sample Name:	LC34-BW0003B-031.5-20120911		
Lab Code:	R1206035-008	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.3**		mg/L	1.0	1	NA	9/18/12 02:46	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1342
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/14/12 01:39
Sample Name:	LC34-BW0003B-031.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1386.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	100	U	100	7.2	
79-34-5	1,1,2,2-Tetrachloroethane	100	U	100	5.0	
79-00-5	1,1,2-Trichloroethane	100	U	100	6.9	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**490**		100	6.2	
75-34-3	1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	100	U	100	12	
120-82-1	1,2,4-Trichlorobenzene	100	U	100	4.7	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	15	
106-93-4	1,2-Dibromoethane	100	U	100	4.8	
95-50-1	1,2-Dichlorobenzene	100	U	100	4.2	
107-06-2	1,2-Dichloroethane	100	U	100	7.2	
78-87-5	1,2-Dichloropropane	100	U	100	4.0	
541-73-1	1,3-Dichlorobenzene	100	U	100	4.0	
106-46-7	1,4-Dichlorobenzene	100	U	100	4.0	
71-36-3	n-Butanol	5000	U	5000	350	
78-93-3	2-Butanone (MEK)	200	U	200	17	
591-78-6	2-Hexanone	200	U	200	34	
108-10-1	4-Methyl-2-pentanone	200	U	200	14	
67-64-1	Acetone	200	U	200	25	
71-43-2	Benzene	100	U	100	4.0	
75-27-4	Bromodichloromethane	100	U	100	6.4	
75-25-2	Bromoform	100	U	100	8.4	
74-83-9	Bromomethane	100	U	100	5.8	
75-15-0	Carbon Disulfide	200	U	200	4.4	
56-23-5	Carbon Tetrachloride	100	U	100	9.0	
108-90-7	Chlorobenzene	100	U	100	5.8	
75-00-3	Chloroethane	100	U	100	4.8	
67-66-3	Chloroform	100	U	100	5.0	
74-87-3	Chloromethane	100	U	100	4.2	
110-82-7	Cyclohexane	200	U	200	5.0	
124-48-1	Dibromochloromethane	100	U	100	6.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	100	U	100	9.3	
75-09-2	Dichloromethane	100	U	100	6.4	
100-41-4	Ethylbenzene	100	U	100	4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1342
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/14/12 01:39
Sample Name:	LC34-BW0003B-031.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1386.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	100	U	100	4.0	
79-20-9	Methyl Acetate	200	U	200	8.6	
1634-04-4	Methyl tert-Butyl Ether	100	U	100	5.8	
108-87-2	Methylcyclohexane	200	U	200	5.4	
100-42-5	Styrene	100	U	100	4.0	
127-18-4	Tetrachloroethene (PCE)	100	U	100	6.0	
108-88-3	Toluene	100	U	100	4.0	
79-01-6	Trichloroethene (TCE)	100	U	100	4.4	
75-69-4	Trichlorofluoromethane (CFC 11)	100	U	100	4.0	
75-01-4	Vinyl Chloride	**350**		100	6.4	
156-59-2	cis-1,2-Dichloroethene	**2100**		100	6.0	
10061-01-5	cis-1,3-Dichloropropene	100	U	100	4.8	
179601-23-1	m,p-Xylenes	100	U	100	6.7	
123-86-4	n-Butyl Acetate	100	U	100	7.9	
95-47-6	o-Xylene	100	U	100	4.0	
156-60-5	trans-1,2-Dichloroethene	**82**	I	100	6.7	
10061-02-6	trans-1,3-Dichloropropene	100	U	100	4.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/14/12 01:39	
Dibromofluoromethane	103	89-119	9/14/12 01:39	
Toluene-d8	100	87-121	9/14/12 01:39	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	9/11/12 1342
Sample Matrix:	Water	**Date Received:**	9/12/12
		Date Analyzed:	9/18/12 13:03
Sample Name:	LC34-BW0003B-031.5-20120911	**Units:**	µg/L
Lab Code:	R1206035-008	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310015
Data File Name:	star050.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	**12**		1.0	
74-82-8	Methane	**99**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1206035-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	9/17/12 18:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/13/12 17:58
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210742-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1372.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	**0.30**	I	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	**0.41**	I	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/13/12 17:58
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210742-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309313
Data File Name:	J:\ACQUDATA\msvoa12\Data\091312\T1372.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	9/13/12 17:58	
Dibromofluoromethane	103	89-119	9/13/12 17:58	
Toluene-d8	99	87-121	9/13/12 17:58	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/17/12 17:33
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210869-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1438.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	**0.28**	I	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	**0.51**	I	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/17/12 17:33
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210869-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309756
Data File Name:	J:\ACQUDATA\MSVOA12\DATA\091712\T1438.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	9/17/12 17:33	
Dibromofluoromethane	101	89-119	9/17/12 17:33	
Toluene-d8	100	87-121	9/17/12 17:33	

Client:	GeoSyntec Consultants	**Service Request:**	R1206035
Project:	ESTCP PED LC34 FO0552B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/18/12 09:08
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210947-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310015
Data File Name:	star016.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B
Sample Matrix: Water

Service Request: R1206035
Date Analyzed: 9/17/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1206035-LCS Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	9.55	10.0	95	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B
Sample Matrix: Water

Service Request: R1206035
Date Analyzed: 9/13/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309313

Analyte Name	Lab Control Sample RQ1210742-03 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1210742-04 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane (TCA)	22.3	20.0	112	21.7	20.0	108	67 - 121	3	30
1,1,2,2-Tetrachloroethane	19.4	20.0	97	18.4	20.0	92	72 - 124	5	30
1,1,2-Trichloroethane	19.3	20.0	96	19.1	20.0	95	81 - 117	<1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	21.5	20.0	107	20.6	20.0	103	60 - 122	4	30
1,1-Dichloroethane (1,1-DCA)	22.7	20.0	113	21.7	20.0	108	76 - 124	4	30
1,1-Dichloroethene (1,1-DCE)	22.7	20.0	114	21.9	20.0	110	67 - 119	4	30
1,2,4-Trichlorobenzene	23.3	20.0	117	22.3	20.0	111	70 - 128	5	30
1,2-Dibromo-3-chloropropane (DBCP)	19.2	20.0	96	18.7	20.0	94	64 - 131	3	30
1,2-Dibromoethane	20.5	20.0	102	20.4	20.0	102	81 - 118	<1	30
1,2-Dichlorobenzene	20.9	20.0	104	20.4	20.0	102	80 - 119	2	30
1,2-Dichloroethane	20.9	20.0	105	20.2	20.0	101	72 - 130	4	30
1,2-Dichloropropane	21.6	20.0	108	20.4	20.0	102	83 - 119	6	30
1,3-Dichlorobenzene	21.1	20.0	106	20.5	20.0	103	79 - 121	3	30
1,4-Dichlorobenzene	21.1	20.0	105	20.8	20.0	104	79 - 119	1	30
n-Butanol	743	1010	74	684	1010	68	49 - 182	8	30
2-Butanone (MEK)	18.4	20.0	92	18.4	20.0	92	60 - 133	<1	30
2-Hexanone	18.1	20.0	91	17.9	20.0	89	61 - 131	2	30
4-Methyl-2-pentanone	19.3	20.0	97	19.1	20.0	95	61 - 132	1	30
Acetone	18.3	20.0	92	19.3	20.0	97	64 - 133	5	30
Benzene	21.5	20.0	107	20.6	20.0	103	78 - 118	4	30
Bromodichloromethane	22.2	20.0	111	21.4	20.0	107	79 - 123	4	30
Bromoform	22.0	20.0	110	21.0	20.0	105	69 - 126	5	30
Bromomethane	17.8	20.0	89	17.0	20.0	85	49 - 124	5	30
Carbon Disulfide	23.0	20.0	115	23.1	20.0	115	67 - 138	<1	30
Carbon Tetrachloride	23.3	20.0	116	22.2	20.0	111	64 - 129	5	30
Chlorobenzene	21.0	20.0	105	20.4	20.0	102	80 - 121	3	30
Chloroethane	19.8	20.0	99	18.7	20.0	93	72 - 130	6	30
Chloroform	21.4	20.0	107	20.3	20.0	102	75 - 123	5	30
Chloromethane	17.8	20.0	89	17.7	20.0	89	55 - 139	<1	30
Cyclohexane	19.5	20.0	97	18.7	20.0	93	55 - 132	4	30
Dibromochloromethane	21.9	20.0	110	21.0	20.0	105	78 - 127	4	30
Dichlorodifluoromethane (CFC 12)	21.6	20.0	108	19.7	20.0	99	45 - 147	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B
Sample Matrix: Water

Service Request: R1206035
Date Analyzed: 9/13/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309313

Analyte Name	Lab Control Sample RQ1210742-03 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1210742-04 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Dichloromethane	22.0	20.0	110	20.9	20.0	104	73 - 122	5	30
Ethylbenzene	21.3	20.0	106	20.0	20.0	100	75 - 123	6	30
Isopropylbenzene (Cumene)	22.5	20.0	112	22.2	20.0	111	75 - 139	1	30
Methyl Acetate	20.1	20.0	101	20.8	20.0	104	65 - 131	3	30
Methyl tert-Butyl Ether	21.4	20.0	107	20.9	20.0	104	75 - 116	3	30
Methylcyclohexane	19.5	20.0	97	18.5	20.0	93	59 - 127	5	30
Styrene	20.7	20.0	104	20.1	20.0	101	80 - 121	3	30
Tetrachloroethene (PCE)	21.1	20.0	106	21.3	20.0	107	71 - 127	<1	30
Toluene	21.5	20.0	108	20.8	20.0	104	77 - 120	3	30
Trichloroethene (TCE)	21.1	20.0	105	20.4	20.0	102	75 - 122	3	30
Trichlorofluoromethane (CFC 11)	24.4	20.0	122	22.9	20.0	114	64 - 134	6	30
Vinyl Chloride	21.3	20.0	107	20.1	20.0	100	68 - 139	6	30
cis-1,2-Dichloroethene	21.4	20.0	107	20.6	20.0	103	77 - 123	4	30
cis-1,3-Dichloropropene	20.2	20.0	101	19.6	20.0	98	77 - 125	3	30
m,p-Xylenes	43.4	40.0	108	42.3	40.0	106	77 - 124	3	30
n-Butyl Acetate	19.8	20.0	99	19.5	20.0	97	61 - 126	1	30
o-Xylene	21.0	20.0	105	20.2	20.0	101	77 - 131	3	30
trans-1,2-Dichloroethene	21.4	20.0	107	20.7	20.0	103	72 - 120	3	30
trans-1,3-Dichloropropene	20.1	20.0	100	19.4	20.0	97	69 - 127	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B
Sample Matrix: Water

Service Request: R1206035
Date Analyzed: 9/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309756

Lab Control Sample
RQ1210869-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.7	20.0	99	67 - 121
1,1,2,2-Tetrachloroethane	19.2	20.0	96	72 - 124
1,1,2-Trichloroethane	20.0	20.0	100	81 - 117
1,1,2-Trichloro-1,2,2-trifluoroethane	19.2	20.0	96	60 - 122
1,1-Dichloroethane (1,1-DCA)	20.5	20.0	103	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.3	20.0	101	67 - 119
1,2,4-Trichlorobenzene	23.5	20.0	118	70 - 128
1,2-Dibromo-3-chloropropane (DBCP)	19.9	20.0	99	64 - 131
1,2-Dibromoethane	20.5	20.0	103	81 - 118
1,2-Dichlorobenzene	20.0	20.0	100	80 - 119
1,2-Dichloroethane	19.5	20.0	97	72 - 130
1,2-Dichloropropane	20.4	20.0	102	83 - 119
1,3-Dichlorobenzene	19.8	20.0	99	79 - 121
1,4-Dichlorobenzene	20.2	20.0	101	79 - 119
n-Butanol	698	1010	69	49 - 182
2-Butanone (MEK)	18.2	20.0	91	60 - 133
2-Hexanone	17.9	20.0	90	61 - 131
4-Methyl-2-pentanone	19.0	20.0	95	61 - 132
Acetone	17.6	20.0	88	64 - 133
Benzene	20.0	20.0	100	78 - 118
Bromodichloromethane	21.1	20.0	106	79 - 123
Bromoform	22.3	20.0	111	69 - 126
Bromomethane	18.3	20.0	91	49 - 124
Carbon Disulfide	20.2	20.0	101	67 - 138
Carbon Tetrachloride	21.3	20.0	107	64 - 129
Chlorobenzene	19.8	20.0	99	80 - 121
Chloroethane	18.2	20.0	91	72 - 130
Chloroform	19.7	20.0	99	75 - 123
Chloromethane	17.0	20.0	85	55 - 139
Cyclohexane	16.7	20.0	83	55 - 132
Dibromochloromethane	22.0	20.0	110	78 - 127
Dichlorodifluoromethane (CFC 12)	18.0	20.0	90	45 - 147

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B
Sample Matrix: Water

Service Request: R1206035
Date Analyzed: 9/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309756

Lab Control Sample
RQ1210869-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	19.5	20.0	97	73 - 122
Ethylbenzene	19.2	20.0	96	75 - 123
Isopropylbenzene (Cumene)	20.3	20.0	101	75 - 139
Methyl Acetate	20.0	20.0	100	65 - 131
Methyl tert-Butyl Ether	21.0	20.0	105	75 - 116
Methylcyclohexane	16.9	20.0	85	59 - 127
Styrene	19.4	20.0	97	80 - 121
Tetrachloroethene (PCE)	19.2	20.0	96	71 - 127
Toluene	20.1	20.0	100	77 - 120
Trichloroethene (TCE)	19.7	20.0	98	75 - 122
Trichlorofluoromethane (CFC 11)	21.2	20.0	106	64 - 134
Vinyl Chloride	18.4	20.0	92	68 - 139
cis-1,2-Dichloroethene	19.9	20.0	100	77 - 123
cis-1,3-Dichloropropene	19.2	20.0	96	77 - 125
m,p-Xylenes	39.4	40.0	98	77 - 124
n-Butyl Acetate	18.8	20.0	94	61 - 126
o-Xylene	19.6	20.0	98	77 - 131
trans-1,2-Dichloroethene	19.2	20.0	96	72 - 120
trans-1,3-Dichloropropene	19.8	20.0	99	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 FO0552B
Sample Matrix: Water

Service Request: R1206035
Date Analyzed: 9/18/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 310015

Analyte Name	Lab Control Sample RQ1210947-02 Result	Spike Amount	% Rec	% Rec Limits
Ethane	30.4	26.0	117	82 - 127
Ethene	26.4	24.3	109	76 - 119
Methane	30.7	26.2	117	82 - 126

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FQ0552B

Project Manager: Rebecca Daprato Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
LC34-BW0002A-024.5-201209	9/11/12	907	-001	W	9	3	3	3							
LC34-BW0002B-031.5-201209		943	-002	W	9	3	3	3							
LC34-BW0002C-038.5-201209		1013	-003	W	9	3	3	3							
LC34-BW0002D-045.5-201209		1151	-004	W	9	3	3	3							
LC34-BW0002E-052.5-201209		1122	-005	W	9	3	3	3							
LC34-BW0002F-059.5-201209		1048	-006	W	9	3	3	3							

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x ____ III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1206035
GeoSyntec Consultants
ESTCP PED LC34 FO0552B
5

Invoice Information

P.O. #

Bill to: FO0552B

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Daniel Gramore	Printed Name:	Printed Name:	Printed Name: Gregory D. Sorensen
Firm: GeoSyntec	Firm:	Firm:	Firm: AES
Date/Time: 9/11/12 1700	Date/Time: 9/11/12	Date/Time:	Date/Time: 9-13-12 0950

FS06

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FO0552B

Project Manager: Rebecca Daprato Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave, Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
						Analysis Requested									
LC34-BW0003A-024.5-201209 II	9/11/12	1348	-007	W	9	3	3	3							
LC34-BW0003B-031.5-201209 II	9/11/12	1342	-008	W	9	3	3	3							
LC34-BW0003C-038.5-201209				W	9	3	3	3							
LC34-BW0003D-045.5-201209				W	9	3	3	3							
LC34-BW0003E-052.5-201209				W	9	3	3	3							
LC34-BW0003F-059.5-201209				W	9	3	3	3							

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: _FO0552B_____

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

x EDD?: NASA KEDD_____

Comments/Special Instructions:

R1206035 5
GeoSyntec Consultants
ESTCP PED LC34 FO0552B

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: David Fremore	Printed Name: FED	Printed Name:	Printed Name: Gregory Osmerian
Firm: GeoSyntec	Firm:	Firm:	Firm: AZS
Date/Time: 9/11/12 1700	Date/Time: 9/11/12 1700	Date/Time:	Date/Time: 9-12-12 9:50

0552

Cooler Receipt and Preservation Check Form

Project/Client _____ Folder Number R1206035

Cooler received on 9-12-12 by: ME COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO)	N/A		
5.	Were Ice or Ice packs present?	(YES)	NO			
6.	Where did the bottles originate?	(ALS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	4.5°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 9-12-12 @ 10:08

Thermometer ID: IR GUN#3 / (IR GUN#4) .Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition & Client Approval to Run Samples: _____

All Samples held in storage location R-602 by ME on 9-12-12 at @ 10:10

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: 9/12/12

Cooler Breakdown: Date: 9/12/12 Time: 1500 by: (M)

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO	
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO	
3.	Were correct containers used for the tests indicated?	(YES)	NO	
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated	(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received *	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC1120714	7/13				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	411100	7/13				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 2-143-001, 2-143-002

Other Comments:

PC Secondary Review: VB 9/27/12

*significant air bubbles: VOA > 5-6 mm ; WC > 1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

October 01, 2012 Service Request No: R1206126

Dr. Rebecca Daprato
GeoSyntec Consultants
11490 Westheimer
Suite 150
Houston, TX 77077

Laboratory Results for: ESTCP PED LC34 9/13/12

Dear Dr. Daprato:

Enclosed are the results of the sample(s) submitted to our laboratory on September 14, 2012. For your reference, these analyses have been assigned our service request number **R1206126**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Karen.Bunker@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

Columbia Analytical Services
ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623
PHONE 585-288-5380 | FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company
www.caslab.com • www.alsglobal.com

Client:	Geosyntec Consultants	**Service Request No.:**	R1206126
Project:	ESTCP PED LC34/ FO552B (9/13/12)	**Date Received:**	9/14/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Sixteen (16) water samples were collected by the client on 9/13/12 and were received for analysis at Columbia Analytical Services on 9/14/12 via a national courier The samples were received at a cooler temperature range of 5.8-5.9°C within the guidelines of 0-6°C. The chain of custody forms were consistent with the samples received. Some bubbles were noted in vials on the Cooler Receipt and Preservation Form.

Volatile Organic Compounds GC/MS

Sixteen (16) water samples were analyzed for a client specific list of Volatile Organics by GC/MS Method 8260C and Dissolved Gases by GC method RSK-175.

The minimum response factor for Acetone was not met in the ICV from 9/17/12 and Trichloroethene on the 9/18/12 run. The data has been considered acceptable since the MRL's have been verified by the low standard in the calibration.

The Continuing Calibration Verification (CCV) %D for 1,2,4-Trichlorobenzene was outside the 20% limit on the 9/17/12 run and Dichlorodifluoromethane on the 9/18/12 run. Any hits for these compounds on the associated runs should be considered as estimated, however the samples were non-detect for this compound and therefore unaffected.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicate (LCSD) recoveries were all within QC limits except for Methyl Tert-Butyl Ether (LCS only) on the 9/18/12 8260C run. The recovery has been flagged as "*".

The samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All Volatile Organic samples were analyzed within 7 days from collection, the holding time for unpreserved vials, which are required for this project. All vials are checked after analysis to verify the pH in order to maintain the integrity of the sample.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The primary and secondary standards expired on 8/31/12 for the RSK-175 analysis. New standards had been ordered well before the expiration dates, however, they did not arrive until 9/25/12. All samples were analyzed within the proper holding time for the analysis, prior to the receipt of the new standards. Gas standards have a 1 year expiration date as per the vendor. No significant degradation was noted over the year. All CCV's, LCS's, MS and MSD recoveries were acceptable. The data has been reported.

The Laboratory Method Blanks were free from contamination.

No other analytical or QC problems were encountered.

Approved by Karen Burdick **Date** 10/1/12

Inorganic Parameters

Sixteen (16) samples were analyzed for TOC by method 9060A. The average of 4 runs are reported for each sample.

All Initial and Continuing Calibration criteria was met.

Batch QC is included in the report. All Laboratory Control Sample (LCS) recoveries were acceptable.

The samples were run within holding time.

No problems were encountered during the analysis of these samples.

Approved by Karen Beecher **Date** 10/1/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1206126

Lab ID	Client ID
R1206126-001	LC34-BW0001A-024.5-20120913
R1206126-002	LC34-BW0001B-031.5-20120913
R1206126-003	LC34-BW0001C-038.5-20120913
R1206126-004	LC34-BW0001D-045.5-20120913
R1206126-005	LC34-BW0001E-052.5-20120913
R1206126-006	LC34-BW0001F-059.5-20120913
R1206126-007	LC34-BW0003C-038.5-20120913
R1206126-008	LC34-BW0003D-045.5-20120913
R1206126-009	LC34-BW0003E-052.5-20120913
R1206126-010	LC34-BW0003F-059.5-20120913
R1206126-011	LC34-RW0007-038.5-20120913
R1206126-012	LC34-RW0008-052.0-20120913
R1206126-013	LC34-IW0002I-027.5-20120913
R1206126-014	LC34-IW0002D-037.5-20120913
R1206126-015	LC34-IW0002DI-052.5-20120913
R1206126-016	LC34-IW0076-075.0-20120913

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1055
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001A-024.5-20120913		
Lab Code:	R1206126-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.3**		mg/L	1.0	1	NA	9/22/12 12:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1055
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001A-024.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	500	U	500	36	100	NA	9/18/12 11:31		309911	
1,1,2,2-Tetrachloroethane	500	U	500	25	100	NA	9/18/12 11:31		309911	
1,1,2-Trichloroethane	500	U	500	34	100	NA	9/18/12 11:31		309911	
1,1,2-Trichloro-1,2,2-trifluoroethane	**20000**		2500	160	500	NA	9/17/12 13:17		309687	
1,1-Dichloroethane (1,1-DCA)	500	U	500	20	100	NA	9/18/12 11:31		309911	
1,1-Dichloroethene (1,1-DCE)	500	U	500	57	100	NA	9/18/12 11:31		309911	
1,2,4-Trichlorobenzene	500	U	500	23	100	NA	9/18/12 11:31		309911	
1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	74	100	NA	9/18/12 11:31		309911	
1,2-Dibromoethane	500	U	500	24	100	NA	9/18/12 11:31		309911	
1,2-Dichlorobenzene	500	U	500	21	100	NA	9/18/12 11:31		309911	
1,2-Dichloroethane	500	U	500	36	100	NA	9/18/12 11:31		309911	
1,2-Dichloropropane	500	U	500	20	100	NA	9/18/12 11:31		309911	
1,3-Dichlorobenzene	500	U	500	20	100	NA	9/18/12 11:31		309911	
1,4-Dichlorobenzene	500	U	500	20	100	NA	9/18/12 11:31		309911	
n-Butanol	25000	U	25000	1800	100	NA	9/18/12 11:31		309911	
2-Butanone (MEK)	1000	U	1000	81	100	NA	9/18/12 11:31		309911	
2-Hexanone	1000	U	1000	170	100	NA	9/18/12 11:31		309911	
4-Methyl-2-pentanone	1000	U	1000	67	100	NA	9/18/12 11:31		309911	
Acetone	1000	U	1000	130	100	NA	9/18/12 11:31		309911	
Benzene	500	U	500	20	100	NA	9/18/12 11:31		309911	
Bromodichloromethane	500	U	500	32	100	NA	9/18/12 11:31		309911	
Bromoform	500	U	500	42	100	NA	9/18/12 11:31		309911	
Bromomethane	500	U	500	29	100	NA	9/18/12 11:31		309911	
Carbon Disulfide	1000	U	1000	22	100	NA	9/18/12 11:31		309911	
Carbon Tetrachloride	500	U	500	45	100	NA	9/18/12 11:31		309911	
Chlorobenzene	500	U	500	29	100	NA	9/18/12 11:31		309911	
Chloroethane	500	U	500	24	100	NA	9/18/12 11:31		309911	
Chloroform	500	U	500	25	100	NA	9/18/12 11:31		309911	
Chloromethane	500	U	500	21	100	NA	9/18/12 11:31		309911	
Cyclohexane	1000	U	1000	25	100	NA	9/18/12 11:31		309911	
Dibromochloromethane	500	U	500	31	100	NA	9/18/12 11:31		309911	
Dichlorodifluoromethane (CFC 12)	500	U	500	46	100	NA	9/18/12 11:31		309911	
Dichloromethane	500	U	500	32	100	NA	9/18/12 11:31		309911	
Ethylbenzene	500	U	500	20	100	NA	9/18/12 11:31		309911	
Isopropylbenzene (Cumene)	500	U	500	20	100	NA	9/18/12 11:31		309911	
Methyl Acetate	1000	U	1000	43	100	NA	9/18/12 11:31		309911	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1055
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001A-024.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	500	U	500	29	100	NA	9/18/12 11:31		309911	
Methylcyclohexane	1000	U	1000	27	100	NA	9/18/12 11:31		309911	
Styrene	500	U	500	20	100	NA	9/18/12 11:31		309911	
Tetrachloroethene (PCE)	500	U	500	30	100	NA	9/18/12 11:31		309911	
Toluene	500	U	500	20	100	NA	9/18/12 11:31		309911	
Trichloroethene (TCE)	500	U	500	22	100	NA	9/18/12 11:31		309911	
Trichlorofluoromethane (CFC 11)	500	U	500	20	100	NA	9/18/12 11:31		309911	
Vinyl Chloride	**200**	I	500	32	100	NA	9/18/12 11:31		309911	
cis-1,2-Dichloroethene	**1700**		500	30	100	NA	9/18/12 11:31		309911	
cis-1,3-Dichloropropene	500	U	500	24	100	NA	9/18/12 11:31		309911	
m,p-Xylenes	500	U	500	33	100	NA	9/18/12 11:31		309911	
n-Butyl Acetate	500	U	500	39	100	NA	9/18/12 11:31		309911	
o-Xylene	500	U	500	20	100	NA	9/18/12 11:31		309911	
trans-1,2-Dichloroethene	**60**	I	500	33	100	NA	9/18/12 11:31		309911	
trans-1,3-Dichloropropene	500	U	500	20	100	NA	9/18/12 11:31		309911	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	9/18/12 11:31	
Dibromofluoromethane	99	89-119	9/18/12 11:31	
Toluene-d8	101	87-121	9/18/12 11:31	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1055
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 13:51
Sample Name:	LC34-BW0001A-024.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310243
Data File Name:	star723.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**1.2**		1.0	
74-85-1	Ethene	**12**		1.0	
74-82-8	Methane	**46**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1123
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001B-031.5-20120913		
Lab Code:	R1206126-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.4**		mg/L	1.0	1	NA	9/22/12 14:09	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Collected: 9/13/12 1123
Date Received: 9/14/12

Sample Name: LC34-BW0001B-031.5-20120913
Lab Code: R1206126-002

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	90	250	NA	9/17/12 13:59		309687	
1,1,2,2-Tetrachloroethane	1300	U	1300	63	250	NA	9/17/12 13:59		309687	
1,1,2-Trichloroethane	1300	U	1300	85	250	NA	9/17/12 13:59		309687	
1,1,2-Trichloro-1,2,2-trifluoroethane	**98000**		5000	310	1000	NA	9/19/12 02:34		309913	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	150	250	NA	9/17/12 13:59		309687	
1,2,4-Trichlorobenzene	1300	U	1300	58	250	NA	9/17/12 13:59		309687	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	190	250	NA	9/17/12 13:59		309687	
1,2-Dibromoethane	1300	U	1300	60	250	NA	9/17/12 13:59		309687	
1,2-Dichlorobenzene	1300	U	1300	53	250	NA	9/17/12 13:59		309687	
1,2-Dichloroethane	1300	U	1300	90	250	NA	9/17/12 13:59		309687	
1,2-Dichloropropane	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
n-Butanol	63000	U	63000	4400	250	NA	9/17/12 13:59		309687	
2-Butanone (MEK)	2500	U	2500	210	250	NA	9/17/12 13:59		309687	
2-Hexanone	2500	U	2500	420	250	NA	9/17/12 13:59		309687	
4-Methyl-2-pentanone	2500	U	2500	170	250	NA	9/17/12 13:59		309687	
Acetone	2500	U	2500	310	250	NA	9/17/12 13:59		309687	
Benzene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
Bromodichloromethane	1300	U	1300	80	250	NA	9/17/12 13:59		309687	
Bromoform	1300	U	1300	110	250	NA	9/17/12 13:59		309687	
Bromomethane	1300	U	1300	73	250	NA	9/17/12 13:59		309687	
Carbon Disulfide	2500	U	2500	55	250	NA	9/17/12 13:59		309687	
Carbon Tetrachloride	1300	U	1300	120	250	NA	9/17/12 13:59		309687	
Chlorobenzene	1300	U	1300	73	250	NA	9/17/12 13:59		309687	
Chloroethane	1300	U	1300	60	250	NA	9/17/12 13:59		309687	
Chloroform	1300	U	1300	63	250	NA	9/17/12 13:59		309687	
Chloromethane	1300	U	1300	53	250	NA	9/17/12 13:59		309687	
Cyclohexane	2500	U	2500	63	250	NA	9/17/12 13:59		309687	
Dibromochloromethane	1300	U	1300	78	250	NA	9/17/12 13:59		309687	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	120	250	NA	9/17/12 13:59		309687	
Dichloromethane	1300	U	1300	80	250	NA	9/17/12 13:59		309687	
Ethylbenzene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
Methyl Acetate	2500	U	2500	110	250	NA	9/17/12 13:59		309687	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1123
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001B-031.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	73	250	NA	9/17/12 13:59		309687	
Methylcyclohexane	2500	U	2500	68	250	NA	9/17/12 13:59		309687	
Styrene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
Tetrachloroethene (PCE)	1300	U	1300	75	250	NA	9/17/12 13:59		309687	
Toluene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
Trichloroethene (TCE)	**350**	I	1300	55	250	NA	9/17/12 13:59		309687	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
Vinyl Chloride	**1100**	I	1300	80	250	NA	9/17/12 13:59		309687	
cis-1,2-Dichloroethene	**19000**		1300	75	250	NA	9/17/12 13:59		309687	
cis-1,3-Dichloropropene	1300	U	1300	60	250	NA	9/17/12 13:59		309687	
m,p-Xylenes	1300	U	1300	83	250	NA	9/17/12 13:59		309687	
n-Butyl Acetate	1300	U	1300	98	250	NA	9/17/12 13:59		309687	
o-Xylene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	
trans-1,2-Dichloroethene	**510**	I	1300	83	250	NA	9/17/12 13:59		309687	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	9/17/12 13:59		309687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	9/17/12 13:59	
Dibromofluoromethane	100	89-119	9/17/12 13:59	
Toluene-d8	106	87-121	9/17/12 13:59	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1123
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 14:02
Sample Name:	LC34-BW0001B-031.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310243
Data File Name:	star724.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**6.3**		1.0	
74-85-1	Ethene	**31**		1.0	
74-82-8	Methane	**71**		1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Sample Name: LC34-BW0001C-038.5-20120913
Lab Code: R1206126-003

Service Request: R1206126
Date Collected: 9/13/12 1127
Date Received: 9/14/12

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**10.4**		mg/L	1.0	1	NA	9/24/12 20:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1127
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001C-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1300	U	1300	90	250	NA	9/17/12 14:27		309687	
1,1,2,2-Tetrachloroethane	1300	U	1300	63	250	NA	9/17/12 14:27		309687	
1,1,2-Trichloroethane	1300	U	1300	85	250	NA	9/17/12 14:27		309687	
1,1,2-Trichloro-1,2,2-trifluoroethane	**47000**		1300	78	250	NA	9/17/12 14:27		309687	
1,1-Dichloroethane (1,1-DCA)	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
1,1-Dichloroethene (1,1-DCE)	1300	U	1300	150	250	NA	9/17/12 14:27		309687	
1,2,4-Trichlorobenzene	1300	U	1300	58	250	NA	9/17/12 14:27		309687	
1,2-Dibromo-3-chloropropane (DBCP)	1300	U	1300	190	250	NA	9/17/12 14:27		309687	
1,2-Dibromoethane	1300	U	1300	60	250	NA	9/17/12 14:27		309687	
1,2-Dichlorobenzene	1300	U	1300	53	250	NA	9/17/12 14:27		309687	
1,2-Dichloroethane	1300	U	1300	90	250	NA	9/17/12 14:27		309687	
1,2-Dichloropropane	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
1,3-Dichlorobenzene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
1,4-Dichlorobenzene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
n-Butanol	63000	U	63000	4400	250	NA	9/17/12 14:27		309687	
2-Butanone (MEK)	2500	U	2500	210	250	NA	9/17/12 14:27		309687	
2-Hexanone	2500	U	2500	420	250	NA	9/17/12 14:27		309687	
4-Methyl-2-pentanone	2500	U	2500	170	250	NA	9/17/12 14:27		309687	
Acetone	2500	U	2500	310	250	NA	9/17/12 14:27		309687	
Benzene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
Bromodichloromethane	1300	U	1300	80	250	NA	9/17/12 14:27		309687	
Bromoform	1300	U	1300	110	250	NA	9/17/12 14:27		309687	
Bromomethane	1300	U	1300	73	250	NA	9/17/12 14:27		309687	
Carbon Disulfide	2500	U	2500	55	250	NA	9/17/12 14:27		309687	
Carbon Tetrachloride	1300	U	1300	120	250	NA	9/17/12 14:27		309687	
Chlorobenzene	1300	U	1300	73	250	NA	9/17/12 14:27		309687	
Chloroethane	1300	U	1300	60	250	NA	9/17/12 14:27		309687	
Chloroform	**300**	I	1300	63	250	NA	9/17/12 14:27		309687	
Chloromethane	1300	U	1300	53	250	NA	9/17/12 14:27		309687	
Cyclohexane	2500	U	2500	63	250	NA	9/17/12 14:27		309687	
Dibromochloromethane	1300	U	1300	78	250	NA	9/17/12 14:27		309687	
Dichlorodifluoromethane (CFC 12)	1300	U	1300	120	250	NA	9/17/12 14:27		309687	
Dichloromethane	1300	U	1300	80	250	NA	9/17/12 14:27		309687	
Ethylbenzene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
Isopropylbenzene (Cumene)	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
Methyl Acetate	2500	U	2500	110	250	NA	9/17/12 14:27		309687	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1127
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001C-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	1300	U	1300	73	250	NA	9/17/12 14:27		309687	
Methylcyclohexane	2500	U	2500	68	250	NA	9/17/12 14:27		309687	
Styrene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
Tetrachloroethene (PCE)	1300	U	1300	75	250	NA	9/17/12 14:27		309687	
Toluene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
Trichloroethene (TCE)	**130**	I	1300	55	250	NA	9/17/12 14:27		309687	
Trichlorofluoromethane (CFC 11)	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
Vinyl Chloride	**1900**		1300	80	250	NA	9/17/12 14:27		309687	
cis-1,2-Dichloroethene	**20000**		1300	75	250	NA	9/17/12 14:27		309687	
cis-1,3-Dichloropropene	1300	U	1300	60	250	NA	9/17/12 14:27		309687	
m,p-Xylenes	1300	U	1300	83	250	NA	9/17/12 14:27		309687	
n-Butyl Acetate	1300	U	1300	98	250	NA	9/17/12 14:27		309687	
o-Xylene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	
trans-1,2-Dichloroethene	**420**	I	1300	83	250	NA	9/17/12 14:27		309687	
trans-1,3-Dichloropropene	1300	U	1300	50	250	NA	9/17/12 14:27		309687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	9/17/12 14:27	
Dibromofluoromethane	96	89-119	9/17/12 14:27	
Toluene-d8	103	87-121	9/17/12 14:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1127
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 13:17
Sample Name:	LC34-BW0001C-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310243
Data File Name:	star720.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**23**		4.0	
74-85-1	Ethene	**200**		4.0	
74-82-8	Methane	**180**		4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1213
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001D-045.5-20120913		
Lab Code:	R1206126-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**92**		mg/L	10	10	NA	9/22/12 16:09	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1213
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/18/12 12:32
Sample Name:	LC34-BW0001D-045.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9421.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	2500	U	2500	180	
79-34-5	1,1,2,2-Tetrachloroethane	2500	U	2500	130	
79-00-5	1,1,2-Trichloroethane	2500	U	2500	170	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**83000**		2500	160	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2500	U	2500	100	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2500	U	2500	290	
120-82-1	1,2,4-Trichlorobenzene	2500	U	2500	120	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2500	U	2500	370	
106-93-4	1,2-Dibromoethane	2500	U	2500	120	
95-50-1	1,2-Dichlorobenzene	2500	U	2500	110	
107-06-2	1,2-Dichloroethane	2500	U	2500	180	
78-87-5	1,2-Dichloropropane	2500	U	2500	100	
541-73-1	1,3-Dichlorobenzene	2500	U	2500	100	
106-46-7	1,4-Dichlorobenzene	2500	U	2500	100	
71-36-3	n-Butanol	130000	U	130000	8700	
78-93-3	2-Butanone (MEK)	5000	U	5000	410	
591-78-6	2-Hexanone	5000	U	5000	830	
108-10-1	4-Methyl-2-pentanone	5000	U	5000	340	
67-64-1	Acetone	5000	U	5000	620	
71-43-2	Benzene	2500	U	2500	100	
75-27-4	Bromodichloromethane	2500	U	2500	160	
75-25-2	Bromoform	2500	U	2500	210	
74-83-9	Bromomethane	2500	U	2500	150	
75-15-0	Carbon Disulfide	5000	U	5000	110	
56-23-5	Carbon Tetrachloride	2500	U	2500	230	
108-90-7	Chlorobenzene	2500	U	2500	150	
75-00-3	Chloroethane	2500	U	2500	120	
67-66-3	Chloroform	**370**	I	2500	130	
74-87-3	Chloromethane	2500	U	2500	110	
110-82-7	Cyclohexane	5000	U	5000	130	
124-48-1	Dibromochloromethane	2500	U	2500	160	
75-71-8	Dichlorodifluoromethane (CFC 12)	2500	U	2500	230	
75-09-2	Dichloromethane	2500	U	2500	160	
100-41-4	Ethylbenzene	2500	U	2500	100	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1213
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/18/12 12:32
Sample Name:	LC34-BW0001D-045.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9421.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	500

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	2500	U	2500	100	
79-20-9	Methyl Acetate	5000	U	5000	220	
1634-04-4	Methyl tert-Butyl Ether	2500	U	2500	150	
108-87-2	Methylcyclohexane	5000	U	5000	140	
100-42-5	Styrene	2500	U	2500	100	
127-18-4	Tetrachloroethene (PCE)	2500	U	2500	150	
108-88-3	Toluene	2500	U	2500	100	
79-01-6	Trichloroethene (TCE)	**43000**		2500	110	
75-69-4	Trichlorofluoromethane (CFC 11)	2500	U	2500	100	
75-01-4	Vinyl Chloride	**990**	I	2500	160	
156-59-2	cis-1,2-Dichloroethene	**12000**		2500	150	
10061-01-5	cis-1,3-Dichloropropene	2500	U	2500	120	
179601-23-1	m,p-Xylenes	2500	U	2500	170	
123-86-4	n-Butyl Acetate	2500	U	2500	200	
95-47-6	o-Xylene	2500	U	2500	100	
156-60-5	trans-1,2-Dichloroethene	2500	U	2500	170	
10061-02-6	trans-1,3-Dichloropropene	2500	U	2500	100	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	9/18/12 12:32	
Dibromofluoromethane	97	89-119	9/18/12 12:32	
Toluene-d8	100	87-121	9/18/12 12:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1213
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 14:13
Sample Name:	LC34-BW0001D-045.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310243
Data File Name:	star725.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**93**		2.0	
74-85-1	Ethene	**43**		2.0	
74-82-8	Methane	**160**		2.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1153
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001E-052.5-20120913		
Lab Code:	R1206126-005	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**9.0**		mg/L	2.0	2	NA	9/22/12 16:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1153
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001E-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	13	U	13	0.90	2.5	NA	9/18/12 13:00		309911	
1,1,2,2-Tetrachloroethane	13	U	13	0.63	2.5	NA	9/18/12 13:00		309911	
1,1,2-Trichloroethane	13	U	13	0.86	2.5	NA	9/18/12 13:00		309911	
1,1,2-Trichloro-1,2,2-trifluoroethane	**460**		50	3.1	10	NA	9/17/12 15:27		309687	
1,1-Dichloroethane (1,1-DCA)	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
1,1-Dichloroethene (1,1-DCE)	13	U	13	1.5	2.5	NA	9/18/12 13:00		309911	
1,2,4-Trichlorobenzene	13	U	13	0.58	2.5	NA	9/18/12 13:00		309911	
1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.9	2.5	NA	9/18/12 13:00		309911	
1,2-Dibromoethane	13	U	13	0.60	2.5	NA	9/18/12 13:00		309911	
1,2-Dichlorobenzene	13	U	13	0.53	2.5	NA	9/18/12 13:00		309911	
1,2-Dichloroethane	13	U	13	0.90	2.5	NA	9/18/12 13:00		309911	
1,2-Dichloropropane	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
1,3-Dichlorobenzene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
1,4-Dichlorobenzene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
n-Butanol	630	U	630	44	2.5	NA	9/18/12 13:00		309911	
2-Butanone (MEK)	25	U	25	2.1	2.5	NA	9/18/12 13:00		309911	
2-Hexanone	25	U	25	4.2	2.5	NA	9/18/12 13:00		309911	
4-Methyl-2-pentanone	25	U	25	1.7	2.5	NA	9/18/12 13:00		309911	
Acetone	**4.5**	I	25	3.1	2.5	NA	9/18/12 13:00		309911	
Benzene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
Bromodichloromethane	13	U	13	0.80	2.5	NA	9/18/12 13:00		309911	
Bromoform	13	U	13	1.1	2.5	NA	9/18/12 13:00		309911	
Bromomethane	13	U	13	0.73	2.5	NA	9/18/12 13:00		309911	
Carbon Disulfide	**9.4**	I	25	0.55	2.5	NA	9/18/12 13:00		309911	
Carbon Tetrachloride	13	U	13	1.2	2.5	NA	9/18/12 13:00		309911	
Chlorobenzene	13	U	13	0.73	2.5	NA	9/18/12 13:00		309911	
Chloroethane	13	U	13	0.60	2.5	NA	9/18/12 13:00		309911	
Chloroform	13	U	13	0.63	2.5	NA	9/18/12 13:00		309911	
Chloromethane	13	U	13	0.53	2.5	NA	9/18/12 13:00		309911	
Cyclohexane	25	U	25	0.63	2.5	NA	9/18/12 13:00		309911	
Dibromochloromethane	13	U	13	0.78	2.5	NA	9/18/12 13:00		309911	
Dichlorodifluoromethane (CFC 12)	13	U	13	1.2	2.5	NA	9/18/12 13:00		309911	
Dichloromethane	**0.98**	I	13	0.80	2.5	NA	9/18/12 13:00		309911	
Ethylbenzene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
Isopropylbenzene (Cumene)	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
Methyl Acetate	25	U	25	1.1	2.5	NA	9/18/12 13:00		309911	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1153
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001E-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	13	U	13	0.73	2.5	NA	9/18/12 13:00		309911	
Methylcyclohexane	25	U	25	0.68	2.5	NA	9/18/12 13:00		309911	
Styrene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
Tetrachloroethene (PCE)	13	U	13	0.75	2.5	NA	9/18/12 13:00		309911	
Toluene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
Trichloroethene (TCE)	**2.4**	I	13	0.55	2.5	NA	9/18/12 13:00		309911	
Trichlorofluoromethane (CFC 11)	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
Vinyl Chloride	**23**		13	0.80	2.5	NA	9/18/12 13:00		309911	
cis-1,2-Dichloroethene	**13**		13	0.75	2.5	NA	9/18/12 13:00		309911	
cis-1,3-Dichloropropene	13	U	13	0.60	2.5	NA	9/18/12 13:00		309911	
m,p-Xylenes	13	U	13	0.83	2.5	NA	9/18/12 13:00		309911	
n-Butyl Acetate	13	U	13	0.98	2.5	NA	9/18/12 13:00		309911	
o-Xylene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	
trans-1,2-Dichloroethene	**2.5**	I	13	0.83	2.5	NA	9/18/12 13:00		309911	
trans-1,3-Dichloropropene	13	U	13	0.50	2.5	NA	9/18/12 13:00		309911	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	9/18/12 13:00	
Dibromofluoromethane	98	89-119	9/18/12 13:00	
Toluene-d8	100	87-121	9/18/12 13:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1153
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001E-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-005	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	25	U	25	25	NA	9/20/12 10:27		310244	
Ethene	**390**		25	25	NA	9/20/12 10:27		310244	
Methane	**2700**		50	50	NA	9/20/12 10:37		310244	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1151
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0001F-059.5-20120913		
Lab Code:	R1206126-006	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.5**		mg/L	1.0	1	NA	9/22/12 17:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1151
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/17/12 15:55
Sample Name:	LC34-BW0001F-059.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309687
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091712\F9396.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**0.71**	I	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	**1.5**	I	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	**0.30**	I	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1151
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/17/12 15:55
Sample Name:	LC34-BW0001F-059.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309687
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091712\F9396.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.4**	I	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**3.8**	I	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	**0.50**	I	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	**0.40**	I	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	9/17/12 15:55	
Dibromofluoromethane	101	89-119	9/17/12 15:55	
Toluene-d8	108	87-121	9/17/12 15:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1151
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 10:50
Sample Name:	LC34-BW0001F-059.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-006	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star733.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	5.0	U	5.0	
74-85-1	Ethene	**99**		5.0	
74-82-8	Methane	**300**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0835
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0003C-038.5-20120913		
Lab Code:	R1206126-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.2**		mg/L	1.0	1	NA	9/22/12 19:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0835
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/18/12 13:32
Sample Name:	LC34-BW0003C-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9423.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	500	U	500	36	
79-34-5	1,1,2,2-Tetrachloroethane	500	U	500	25	
79-00-5	1,1,2-Trichloroethane	500	U	500	34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	500	U	500	31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	500	U	500	20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	500	U	500	57	
120-82-1	1,2,4-Trichlorobenzene	500	U	500	23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	500	U	500	74	
106-93-4	1,2-Dibromoethane	500	U	500	24	
95-50-1	1,2-Dichlorobenzene	500	U	500	21	
107-06-2	1,2-Dichloroethane	500	U	500	36	
78-87-5	1,2-Dichloropropane	500	U	500	20	
541-73-1	1,3-Dichlorobenzene	500	U	500	20	
106-46-7	1,4-Dichlorobenzene	500	U	500	20	
71-36-3	n-Butanol	25000	U	25000	1800	
78-93-3	2-Butanone (MEK)	1000	U	1000	81	
591-78-6	2-Hexanone	1000	U	1000	170	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	67	
67-64-1	Acetone	1000	U	1000	130	
71-43-2	Benzene	500	U	500	20	
75-27-4	Bromodichloromethane	500	U	500	32	
75-25-2	Bromoform	500	U	500	42	
74-83-9	Bromomethane	500	U	500	29	
75-15-0	Carbon Disulfide	**43**	I	1000	22	
56-23-5	Carbon Tetrachloride	500	U	500	45	
108-90-7	Chlorobenzene	500	U	500	29	
75-00-3	Chloroethane	500	U	500	24	
67-66-3	Chloroform	**36**	I	500	25	
74-87-3	Chloromethane	500	U	500	21	
110-82-7	Cyclohexane	1000	U	1000	25	
124-48-1	Dibromochloromethane	500	U	500	31	
75-71-8	Dichlorodifluoromethane (CFC 12)	500	U	500	46	
75-09-2	Dichloromethane	500	U	500	32	
100-41-4	Ethylbenzene	500	U	500	20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0835
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/18/12 13:32
Sample Name:	LC34-BW0003C-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9423.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	500	U	500	20	
79-20-9	Methyl Acetate	1000	U	1000	43	
1634-04-4	Methyl tert-Butyl Ether	500	U	500	29	
108-87-2	Methylcyclohexane	1000	U	1000	27	
100-42-5	Styrene	500	U	500	20	
127-18-4	Tetrachloroethene (PCE)	500	U	500	30	
108-88-3	Toluene	500	U	500	20	
79-01-6	Trichloroethene (TCE)	500	U	500	22	
75-69-4	Trichlorofluoromethane (CFC 11)	500	U	500	20	
75-01-4	Vinyl Chloride	**5100**		500	32	
156-59-2	cis-1,2-Dichloroethene	**17000**		500	30	
10061-01-5	cis-1,3-Dichloropropene	500	U	500	24	
179601-23-1	m,p-Xylenes	500	U	500	33	
123-86-4	n-Butyl Acetate	500	U	500	39	
95-47-6	o-Xylene	500	U	500	20	
156-60-5	trans-1,2-Dichloroethene	**560**		500	33	
10061-02-6	trans-1,3-Dichloropropene	500	U	500	20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	9/18/12 13:32	
Dibromofluoromethane	97	89-119	9/18/12 13:32	
Toluene-d8	99	87-121	9/18/12 13:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0835
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 11:12
Sample Name:	LC34-BW0003C-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-007	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star735.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**9.6**		5.0	
74-85-1	Ethene	**410**		5.0	
74-82-8	Methane	**180**		5.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Sample Name: LC34-BW0003D-045.5-20120913
Lab Code: R1206126-008

Service Request: R1206126
Date Collected: 9/13/12 1008
Date Received: 9/14/12

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**50.1**		mg/L	4.0	4	NA	9/22/12 20:08	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1008
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/18/12 14:00
Sample Name:	LC34-BW0003D-045.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9424.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	100	U	100	7.2	
79-34-5	1,1,2,2-Tetrachloroethane	100	U	100	5.0	
79-00-5	1,1,2-Trichloroethane	100	U	100	6.9	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**67**	I	100	6.2	
75-34-3	1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	100	U	100	12	
120-82-1	1,2,4-Trichlorobenzene	100	U	100	4.7	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	15	
106-93-4	1,2-Dibromoethane	100	U	100	4.8	
95-50-1	1,2-Dichlorobenzene	100	U	100	4.2	
107-06-2	1,2-Dichloroethane	100	U	100	7.2	
78-87-5	1,2-Dichloropropane	100	U	100	4.0	
541-73-1	1,3-Dichlorobenzene	100	U	100	4.0	
106-46-7	1,4-Dichlorobenzene	100	U	100	4.0	
71-36-3	n-Butanol	5000	U	5000	350	
78-93-3	2-Butanone (MEK)	200	U	200	17	
591-78-6	2-Hexanone	200	U	200	34	
108-10-1	4-Methyl-2-pentanone	200	U	200	14	
67-64-1	Acetone	200	U	200	25	
71-43-2	Benzene	100	U	100	4.0	
75-27-4	Bromodichloromethane	100	U	100	6.4	
75-25-2	Bromoform	100	U	100	8.4	
74-83-9	Bromomethane	100	U	100	5.8	
75-15-0	Carbon Disulfide	**57**	I	200	4.4	
56-23-5	Carbon Tetrachloride	100	U	100	9.0	
108-90-7	Chlorobenzene	100	U	100	5.8	
75-00-3	Chloroethane	100	U	100	4.8	
67-66-3	Chloroform	100	U	100	5.0	
74-87-3	Chloromethane	100	U	100	4.2	
110-82-7	Cyclohexane	200	U	200	5.0	
124-48-1	Dibromochloromethane	100	U	100	6.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	100	U	100	9.3	
75-09-2	Dichloromethane	100	U	100	6.4	
100-41-4	Ethylbenzene	100	U	100	4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1008
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/18/12 14:00
Sample Name:	LC34-BW0003D-045.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9424.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	100	U	100	4.0	
79-20-9	Methyl Acetate	200	U	200	8.6	
1634-04-4	Methyl tert-Butyl Ether	100	U	100	5.8	
108-87-2	Methylcyclohexane	200	U	200	5.4	
100-42-5	Styrene	100	U	100	4.0	
127-18-4	Tetrachloroethene (PCE)	100	U	100	6.0	
108-88-3	Toluene	100	U	100	4.0	
79-01-6	Trichloroethene (TCE)	100	U	100	4.4	
75-69-4	Trichlorofluoromethane (CFC 11)	100	U	100	4.0	
75-01-4	Vinyl Chloride	**2600**		100	6.4	
156-59-2	cis-1,2-Dichloroethene	**86**	I	100	6.0	
10061-01-5	cis-1,3-Dichloropropene	100	U	100	4.8	
179601-23-1	m,p-Xylenes	100	U	100	6.7	
123-86-4	n-Butyl Acetate	100	U	100	7.9	
95-47-6	o-Xylene	100	U	100	4.0	
156-60-5	trans-1,2-Dichloroethene	**61**	I	100	6.7	
10061-02-6	trans-1,3-Dichloropropene	100	U	100	4.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	9/18/12 14:00	
Dibromofluoromethane	97	89-119	9/18/12 14:00	
Toluene-d8	100	87-121	9/18/12 14:00	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1008
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 11:31
Sample Name:	LC34-BW0003D-045.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-008	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star736.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**26**		25	
74-85-1	Ethene	**1200**		25	
74-82-8	Methane	**1400**		25	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0938
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0003E-052.5-20120913		
Lab Code:	R1206126-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**37.5**		mg/L	4.0	4	NA	9/22/12 20:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0938
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 03:02
Sample Name:	LC34-BW0003E-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9451.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	13	U	13	0.90	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	13	0.63	
79-00-5	1,1,2-Trichloroethane	13	U	13	0.86	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**8.9**	I	13	0.78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	13	U	13	0.50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	13	U	13	1.5	
120-82-1	1,2,4-Trichlorobenzene	13	U	13	0.58	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	13	U	13	1.9	
106-93-4	1,2-Dibromoethane	13	U	13	0.60	
95-50-1	1,2-Dichlorobenzene	13	U	13	0.53	
107-06-2	1,2-Dichloroethane	13	U	13	0.90	
78-87-5	1,2-Dichloropropane	13	U	13	0.50	
541-73-1	1,3-Dichlorobenzene	13	U	13	0.50	
106-46-7	1,4-Dichlorobenzene	13	U	13	0.50	
71-36-3	n-Butanol	630	U	630	44	
78-93-3	2-Butanone (MEK)	25	U	25	2.1	
591-78-6	2-Hexanone	25	U	25	4.2	
108-10-1	4-Methyl-2-pentanone	25	U	25	1.7	
67-64-1	Acetone	**5.9**	I	25	3.1	
71-43-2	Benzene	13	U	13	0.50	
75-27-4	Bromodichloromethane	13	U	13	0.80	
75-25-2	Bromoform	13	U	13	1.1	
74-83-9	Bromomethane	13	U	13	0.73	
75-15-0	Carbon Disulfide	**6.7**	I	25	0.55	
56-23-5	Carbon Tetrachloride	13	U	13	1.2	
108-90-7	Chlorobenzene	13	U	13	0.73	
75-00-3	Chloroethane	13	U	13	0.60	
67-66-3	Chloroform	13	U	13	0.63	
74-87-3	Chloromethane	13	U	13	0.53	
110-82-7	Cyclohexane	25	U	25	0.63	
124-48-1	Dibromochloromethane	13	U	13	0.78	
75-71-8	Dichlorodifluoromethane (CFC 12)	13	U	13	1.2	
75-09-2	Dichloromethane	13	U	13	0.80	
100-41-4	Ethylbenzene	13	U	13	0.50	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0938
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 03:02
Sample Name:	LC34-BW0003E-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9451.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	13	U	13	0.50	
79-20-9	Methyl Acetate	25	U	25	1.1	
1634-04-4	Methyl tert-Butyl Ether	13	U	13	0.73	
108-87-2	Methylcyclohexane	25	U	25	0.68	
100-42-5	Styrene	13	U	13	0.50	
127-18-4	Tetrachloroethene (PCE)	13	U	13	0.75	
108-88-3	Toluene	13	U	13	0.50	
79-01-6	Trichloroethene (TCE)	**3.1**	I	13	0.55	
75-69-4	Trichlorofluoromethane (CFC 11)	13	U	13	0.50	
75-01-4	Vinyl Chloride	**270**		13	0.80	
156-59-2	cis-1,2-Dichloroethene	**58**		13	0.75	
10061-01-5	cis-1,3-Dichloropropene	13	U	13	0.60	
179601-23-1	m,p-Xylenes	13	U	13	0.83	
123-86-4	n-Butyl Acetate	**30**		13	0.98	
95-47-6	o-Xylene	13	U	13	0.50	
156-60-5	trans-1,2-Dichloroethene	**9.4**	I	13	0.83	
10061-02-6	trans-1,3-Dichloropropene	13	U	13	0.50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	9/19/12 03:02	
Dibromofluoromethane	99	89-119	9/19/12 03:02	
Toluene-d8	102	87-121	9/19/12 03:02	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0938
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 12:21
Sample Name:	LC34-BW0003E-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-009	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star737.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**21**		20	
74-85-1	Ethene	**1000**		20	
74-82-8	Methane	**920**		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0910
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-BW0003F-059.5-20120913		
Lab Code:	R1206126-010	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**4.9**		mg/L	1.0	1	NA	9/22/12 21:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0910
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 03:30
Sample Name:	LC34-BW0003F-059.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9452.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	**1.7**	I	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	**1.0**	I	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0910
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 03:30
Sample Name:	LC34-BW0003F-059.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9452.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.82**	I	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**90**		5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	**3.6**	I	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**2.7**	I	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	9/19/12 03:30	
Dibromofluoromethane	99	89-119	9/19/12 03:30	
Toluene-d8	102	87-121	9/19/12 03:30	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0910
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 12:34
Sample Name:	LC34-BW0003F-059.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-010	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star738.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	20	U	20	
74-85-1	Ethene	**290**		20	
74-82-8	Methane	**1100**		20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0951
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-RW0007-038.5-20120913		
Lab Code:	R1206126-011	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**9.6**		mg/L	1.0	1	NA	9/24/12 21:10	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0951
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 03:58
Sample Name:	LC34-RW0007-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9453.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	100	U	100	7.2	
79-34-5	1,1,2,2-Tetrachloroethane	100	U	100	5.0	
79-00-5	1,1,2-Trichloroethane	100	U	100	6.9	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**2900**		100	6.2	
75-34-3	1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	100	U	100	12	
120-82-1	1,2,4-Trichlorobenzene	100	U	100	4.7	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	15	
106-93-4	1,2-Dibromoethane	100	U	100	4.8	
95-50-1	1,2-Dichlorobenzene	100	U	100	4.2	
107-06-2	1,2-Dichloroethane	100	U	100	7.2	
78-87-5	1,2-Dichloropropane	100	U	100	4.0	
541-73-1	1,3-Dichlorobenzene	100	U	100	4.0	
106-46-7	1,4-Dichlorobenzene	100	U	100	4.0	
71-36-3	n-Butanol	5000	U	5000	350	
78-93-3	2-Butanone (MEK)	200	U	200	17	
591-78-6	2-Hexanone	200	U	200	34	
108-10-1	4-Methyl-2-pentanone	200	U	200	14	
67-64-1	Acetone	200	U	200	25	
71-43-2	Benzene	100	U	100	4.0	
75-27-4	Bromodichloromethane	100	U	100	6.4	
75-25-2	Bromoform	100	U	100	8.4	
74-83-9	Bromomethane	100	U	100	5.8	
75-15-0	Carbon Disulfide	**9.6**	I	200	4.4	
56-23-5	Carbon Tetrachloride	100	U	100	9.0	
108-90-7	Chlorobenzene	100	U	100	5.8	
75-00-3	Chloroethane	100	U	100	4.8	
67-66-3	Chloroform	100	U	100	5.0	
74-87-3	Chloromethane	100	U	100	4.2	
110-82-7	Cyclohexane	200	U	200	5.0	
124-48-1	Dibromochloromethane	100	U	100	6.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	100	U	100	9.3	
75-09-2	Dichloromethane	100	U	100	6.4	
100-41-4	Ethylbenzene	100	U	100	4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0951
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 03:58
Sample Name:	LC34-RW0007-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9453.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	100	U	100	4.0	
79-20-9	Methyl Acetate	200	U	200	8.6	
1634-04-4	Methyl tert-Butyl Ether	100	U	100	5.8	
108-87-2	Methylcyclohexane	200	U	200	5.4	
100-42-5	Styrene	100	U	100	4.0	
127-18-4	Tetrachloroethene (PCE)	100	U	100	6.0	
108-88-3	Toluene	100	U	100	4.0	
79-01-6	Trichloroethene (TCE)	**210**		100	4.4	
75-69-4	Trichlorofluoromethane (CFC 11)	100	U	100	4.0	
75-01-4	Vinyl Chloride	**2000**		100	6.4	
156-59-2	cis-1,2-Dichloroethene	**2300**		100	6.0	
10061-01-5	cis-1,3-Dichloropropene	100	U	100	4.8	
179601-23-1	m,p-Xylenes	100	U	100	6.7	
123-86-4	n-Butyl Acetate	100	U	100	7.9	
95-47-6	o-Xylene	100	U	100	4.0	
156-60-5	trans-1,2-Dichloroethene	**100**		100	6.7	
10061-02-6	trans-1,3-Dichloropropene	100	U	100	4.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	9/19/12 03:58	
Dibromofluoromethane	100	89-119	9/19/12 03:58	
Toluene-d8	104	87-121	9/19/12 03:58	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0951
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 13:06
Sample Name:	LC34-RW0007-038.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-011	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star741.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**11**		5.0	
74-85-1	Ethene	**370**		5.0	
74-82-8	Methane	**360**		5.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1020
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-RW0008-052.0-20120913		
Lab Code:	R1206126-012	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**27.0**		mg/L	4.0	4	NA	9/22/12 22:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1020
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 04:25
Sample Name:	LC34-RW0008-052.0-20120913	**Units:**	µg/L
Lab Code:	R1206126-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9454.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	25	U	25	1.8	
79-34-5	1,1,2,2-Tetrachloroethane	25	U	25	1.3	
79-00-5	1,1,2-Trichloroethane	25	U	25	1.8	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**530**		25	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	25	U	25	2.9	
120-82-1	1,2,4-Trichlorobenzene	25	U	25	1.2	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	3.7	
106-93-4	1,2-Dibromoethane	25	U	25	1.2	
95-50-1	1,2-Dichlorobenzene	25	U	25	1.1	
107-06-2	1,2-Dichloroethane	25	U	25	1.8	
78-87-5	1,2-Dichloropropane	25	U	25	1.0	
541-73-1	1,3-Dichlorobenzene	25	U	25	1.0	
106-46-7	1,4-Dichlorobenzene	25	U	25	1.0	
71-36-3	n-Butanol	1300	U	1300	87	
78-93-3	2-Butanone (MEK)	50	U	50	4.1	
591-78-6	2-Hexanone	50	U	50	8.3	
108-10-1	4-Methyl-2-pentanone	50	U	50	3.4	
67-64-1	Acetone	**8.6**	I	50	6.2	
71-43-2	Benzene	25	U	25	1.0	
75-27-4	Bromodichloromethane	25	U	25	1.6	
75-25-2	Bromoform	25	U	25	2.1	
74-83-9	Bromomethane	25	U	25	1.5	
75-15-0	Carbon Disulfide	**9.4**	I	50	1.1	
56-23-5	Carbon Tetrachloride	25	U	25	2.3	
108-90-7	Chlorobenzene	25	U	25	1.5	
75-00-3	Chloroethane	25	U	25	1.2	
67-66-3	Chloroform	25	U	25	1.3	
74-87-3	Chloromethane	25	U	25	1.1	
110-82-7	Cyclohexane	50	U	50	1.3	
124-48-1	Dibromochloromethane	25	U	25	1.6	
75-71-8	Dichlorodifluoromethane (CFC 12)	25	U	25	2.4	
75-09-2	Dichloromethane	25	U	25	1.6	
100-41-4	Ethylbenzene	25	U	25	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Collected: 9/13/12 1020
Date Received: 9/14/12
Date Analyzed: 9/19/12 04:25

Sample Name: LC34-RW0008-052.0-20120913
Lab Code: R1206126-012

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C
Data File Name: J:\ACQUDATA\MSVOA8\DATA\091812\F9454.D\

Analysis Lot: 309913
Instrument Name: R-MS-08
Dilution Factor: 5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	25	U	25	1.0	
79-20-9	Methyl Acetate	50	U	50	2.2	
1634-04-4	Methyl tert-Butyl Ether	25	U	25	1.5	
108-87-2	Methylcyclohexane	50	U	50	1.4	
100-42-5	Styrene	25	U	25	1.0	
127-18-4	Tetrachloroethene (PCE)	25	U	25	1.5	
108-88-3	Toluene	25	U	25	1.0	
79-01-6	Trichloroethene (TCE)	**56**		25	1.1	
75-69-4	Trichlorofluoromethane (CFC 11)	25	U	25	1.0	
75-01-4	Vinyl Chloride	**710**		25	1.6	
156-59-2	cis-1,2-Dichloroethene	**750**		25	1.5	
10061-01-5	cis-1,3-Dichloropropene	25	U	25	1.2	
179601-23-1	m,p-Xylenes	25	U	25	1.7	
123-86-4	n-Butyl Acetate	25	U	25	2.0	
95-47-6	o-Xylene	25	U	25	1.0	
156-60-5	trans-1,2-Dichloroethene	**14**	I	25	1.7	
10061-02-6	trans-1,3-Dichloropropene	25	U	25	1.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	9/19/12 04:25	
Dibromofluoromethane	102	89-119	9/19/12 04:25	
Toluene-d8	104	87-121	9/19/12 04:25	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1020
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 13:23
Sample Name:	LC34-RW0008-052.0-20120913	**Units:**	µg/L
Lab Code:	R1206126-012	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star742.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**30**		10	
74-85-1	Ethene	**940**		10	
74-82-8	Methane	**760**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0824
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-IW0002I-027.5-20120913		
Lab Code:	R1206126-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**2.3**		mg/L	1.0	1	NA	9/22/12 23:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0824
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 13:54
Sample Name:	LC34-IW0002I-027.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-013	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star961.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**1.6**		1.0	
74-85-1	Ethene	**3.1**		1.0	
74-82-8	Methane	**24**		1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0824
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-IW0002I-027.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	25	U	25	1.8	5	NA	9/17/12 19:13		309687	
1,1,2,2-Tetrachloroethane	25	U	25	1.3	5	NA	9/17/12 19:13		309687	
1,1,2-Trichloroethane	25	U	25	1.8	5	NA	9/17/12 19:13		309687	
1,1,2-Trichloro-1,2,2-trifluoroethane	**11000**		500	31	100	NA	9/19/12 04:53		309913	
1,1-Dichloroethane (1,1-DCA)	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
1,1-Dichloroethene (1,1-DCE)	25	U	25	2.9	5	NA	9/17/12 19:13		309687	
1,2,4-Trichlorobenzene	25	U	25	1.2	5	NA	9/17/12 19:13		309687	
1,2-Dibromo-3-chloropropane (DBCP)	25	U	25	3.7	5	NA	9/17/12 19:13		309687	
1,2-Dibromoethane	25	U	25	1.2	5	NA	9/17/12 19:13		309687	
1,2-Dichlorobenzene	25	U	25	1.1	5	NA	9/17/12 19:13		309687	
1,2-Dichloroethane	25	U	25	1.8	5	NA	9/17/12 19:13		309687	
1,2-Dichloropropane	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
1,3-Dichlorobenzene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
1,4-Dichlorobenzene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
n-Butanol	1300	U	1300	87	5	NA	9/17/12 19:13		309687	
2-Butanone (MEK)	50	U	50	4.1	5	NA	9/17/12 19:13		309687	
2-Hexanone	50	U	50	8.3	5	NA	9/17/12 19:13		309687	
4-Methyl-2-pentanone	50	U	50	3.4	5	NA	9/17/12 19:13		309687	
Acetone	50	U	50	6.2	5	NA	9/17/12 19:13		309687	
Benzene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
Bromodichloromethane	25	U	25	1.6	5	NA	9/17/12 19:13		309687	
Bromoform	25	U	25	2.1	5	NA	9/17/12 19:13		309687	
Bromomethane	25	U	25	1.5	5	NA	9/17/12 19:13		309687	
Carbon Disulfide	50	U	50	1.1	5	NA	9/17/12 19:13		309687	
Carbon Tetrachloride	25	U	25	2.3	5	NA	9/17/12 19:13		309687	
Chlorobenzene	25	U	25	1.5	5	NA	9/17/12 19:13		309687	
Chloroethane	25	U	25	1.2	5	NA	9/17/12 19:13		309687	
Chloroform	25	U	25	1.3	5	NA	9/17/12 19:13		309687	
Chloromethane	25	U	25	1.1	5	NA	9/17/12 19:13		309687	
Cyclohexane	50	U	50	1.3	5	NA	9/17/12 19:13		309687	
Dibromochloromethane	25	U	25	1.6	5	NA	9/17/12 19:13		309687	
Dichlorodifluoromethane (CFC 12)	25	U	25	2.4	5	NA	9/17/12 19:13		309687	
Dichloromethane	25	U	25	1.6	5	NA	9/17/12 19:13		309687	
Ethylbenzene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
Isopropylbenzene (Cumene)	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
Methyl Acetate	50	U	50	2.2	5	NA	9/17/12 19:13		309687	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0824
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-IW0002I-027.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Methyl tert-Butyl Ether	25	U	25	1.5	5	NA	9/17/12 19:13		309687	
Methylcyclohexane	50	U	50	1.4	5	NA	9/17/12 19:13		309687	
Styrene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
Tetrachloroethene (PCE)	25	U	25	1.5	5	NA	9/17/12 19:13		309687	
Toluene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
Trichloroethene (TCE)	**5.5**	I	25	1.1	5	NA	9/17/12 19:13		309687	
Trichlorofluoromethane (CFC 11)	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
Vinyl Chloride	**43**		25	1.6	5	NA	9/17/12 19:13		309687	
cis-1,2-Dichloroethene	**500**		25	1.5	5	NA	9/17/12 19:13		309687	
cis-1,3-Dichloropropene	25	U	25	1.2	5	NA	9/17/12 19:13		309687	
m,p-Xylenes	25	U	25	1.7	5	NA	9/17/12 19:13		309687	
n-Butyl Acetate	25	U	25	2.0	5	NA	9/17/12 19:13		309687	
o-Xylene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	
trans-1,2-Dichloroethene	**17**	I	25	1.7	5	NA	9/17/12 19:13		309687	
trans-1,3-Dichloropropene	25	U	25	1.0	5	NA	9/17/12 19:13		309687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	9/17/12 19:13	
Dibromofluoromethane	99	89-119	9/17/12 19:13	
Toluene-d8	105	87-121	9/17/12 19:13	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0851
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-IW0002D-037.5-20120913		
Lab Code:	R1206126-014	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**8.7**		mg/L	1.0	1	NA	9/22/12 00:06	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0851
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 05:21
Sample Name:	LC34-IW0002D-037.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9456.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	100	U	100	7.2	
79-34-5	1,1,2,2-Tetrachloroethane	100	U	100	5.0	
79-00-5	1,1,2-Trichloroethane	100	U	100	6.9	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	100	U	100	6.2	
75-34-3	1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	100	U	100	12	
120-82-1	1,2,4-Trichlorobenzene	100	U	100	4.7	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	15	
106-93-4	1,2-Dibromoethane	100	U	100	4.8	
95-50-1	1,2-Dichlorobenzene	100	U	100	4.2	
107-06-2	1,2-Dichloroethane	100	U	100	7.2	
78-87-5	1,2-Dichloropropane	100	U	100	4.0	
541-73-1	1,3-Dichlorobenzene	100	U	100	4.0	
106-46-7	1,4-Dichlorobenzene	100	U	100	4.0	
71-36-3	n-Butanol	5000	U	5000	350	
78-93-3	2-Butanone (MEK)	200	U	200	17	
591-78-6	2-Hexanone	200	U	200	34	
108-10-1	4-Methyl-2-pentanone	200	U	200	14	
67-64-1	Acetone	200	U	200	25	
71-43-2	Benzene	100	U	100	4.0	
75-27-4	Bromodichloromethane	100	U	100	6.4	
75-25-2	Bromoform	100	U	100	8.4	
74-83-9	Bromomethane	100	U	100	5.8	
75-15-0	Carbon Disulfide	**20**	I	200	4.4	
56-23-5	Carbon Tetrachloride	100	U	100	9.0	
108-90-7	Chlorobenzene	100	U	100	5.8	
75-00-3	Chloroethane	100	U	100	4.8	
67-66-3	Chloroform	100	U	100	5.0	
74-87-3	Chloromethane	100	U	100	4.2	
110-82-7	Cyclohexane	200	U	200	5.0	
124-48-1	Dibromochloromethane	100	U	100	6.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	100	U	100	9.3	
75-09-2	Dichloromethane	100	U	100	6.4	
100-41-4	Ethylbenzene	100	U	100	4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0851
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 05:21
Sample Name:	LC34-IW0002D-037.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9456.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	100	U	100	4.0	
79-20-9	Methyl Acetate	200	U	200	8.6	
1634-04-4	Methyl tert-Butyl Ether	100	U	100	5.8	
108-87-2	Methylcyclohexane	200	U	200	5.4	
100-42-5	Styrene	100	U	100	4.0	
127-18-4	Tetrachloroethene (PCE)	100	U	100	6.0	
108-88-3	Toluene	100	U	100	4.0	
79-01-6	Trichloroethene (TCE)	**5.6**	I	100	4.4	
75-69-4	Trichlorofluoromethane (CFC 11)	100	U	100	4.0	
75-01-4	Vinyl Chloride	**2400**		100	6.4	
156-59-2	cis-1,2-Dichloroethene	**1300**		100	6.0	
10061-01-5	cis-1,3-Dichloropropene	100	U	100	4.8	
179601-23-1	m,p-Xylenes	100	U	100	6.7	
123-86-4	n-Butyl Acetate	100	U	100	7.9	
95-47-6	o-Xylene	100	U	100	4.0	
156-60-5	trans-1,2-Dichloroethene	**110**		100	6.7	
10061-02-6	trans-1,3-Dichloropropene	100	U	100	4.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	9/19/12 05:21	
Dibromofluoromethane	98	89-119	9/19/12 05:21	
Toluene-d8	104	87-121	9/19/12 05:21	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0851
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 14:29
Sample Name:	LC34-IW0002D-037.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-014	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star963.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	**24**		10	
74-85-1	Ethene	**670**		10	
74-82-8	Methane	**310**		10	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0922
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-IW0002DI-052.5-20120913		
Lab Code:	R1206126-015	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**37.4**		mg/L	4.0	4	NA	9/24/12 21:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0922
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 05:49
Sample Name:	LC34-IW0002DI-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9457.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	100	U	100	7.2	
79-34-5	1,1,2,2-Tetrachloroethane	100	U	100	5.0	
79-00-5	1,1,2-Trichloroethane	100	U	100	6.9	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**55**	I	100	6.2	
75-34-3	1,1-Dichloroethane (1,1-DCA)	100	U	100	4.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	100	U	100	12	
120-82-1	1,2,4-Trichlorobenzene	100	U	100	4.7	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	15	
106-93-4	1,2-Dibromoethane	100	U	100	4.8	
95-50-1	1,2-Dichlorobenzene	100	U	100	4.2	
107-06-2	1,2-Dichloroethane	100	U	100	7.2	
78-87-5	1,2-Dichloropropane	100	U	100	4.0	
541-73-1	1,3-Dichlorobenzene	100	U	100	4.0	
106-46-7	1,4-Dichlorobenzene	100	U	100	4.0	
71-36-3	n-Butanol	5000	U	5000	350	
78-93-3	2-Butanone (MEK)	200	U	200	17	
591-78-6	2-Hexanone	200	U	200	34	
108-10-1	4-Methyl-2-pentanone	200	U	200	14	
67-64-1	Acetone	200	U	200	25	
71-43-2	Benzene	100	U	100	4.0	
75-27-4	Bromodichloromethane	100	U	100	6.4	
75-25-2	Bromoform	100	U	100	8.4	
74-83-9	Bromomethane	100	U	100	5.8	
75-15-0	Carbon Disulfide	**7.6**	I	200	4.4	
56-23-5	Carbon Tetrachloride	100	U	100	9.0	
108-90-7	Chlorobenzene	100	U	100	5.8	
75-00-3	Chloroethane	100	U	100	4.8	
67-66-3	Chloroform	100	U	100	5.0	
74-87-3	Chloromethane	100	U	100	4.2	
110-82-7	Cyclohexane	200	U	200	5.0	
124-48-1	Dibromochloromethane	100	U	100	6.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	100	U	100	9.3	
75-09-2	Dichloromethane	100	U	100	6.4	
100-41-4	Ethylbenzene	100	U	100	4.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0922
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/19/12 05:49
Sample Name:	LC34-IW0002DI-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9457.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	20

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	100	U	100	4.0	
79-20-9	Methyl Acetate	200	U	200	8.6	
1634-04-4	Methyl tert-Butyl Ether	100	U	100	5.8	
108-87-2	Methylcyclohexane	200	U	200	5.4	
100-42-5	Styrene	100	U	100	4.0	
127-18-4	Tetrachloroethene (PCE)	100	U	100	6.0	
108-88-3	Toluene	100	U	100	4.0	
79-01-6	Trichloroethene (TCE)	100	U	100	4.4	
75-69-4	Trichlorofluoromethane (CFC 11)	100	U	100	4.0	
75-01-4	Vinyl Chloride	**2000**		100	6.4	
156-59-2	cis-1,2-Dichloroethene	**48**	I	100	6.0	
10061-01-5	cis-1,3-Dichloropropene	100	U	100	4.8	
179601-23-1	m,p-Xylenes	100	U	100	6.7	
123-86-4	n-Butyl Acetate	100	U	100	7.9	
95-47-6	o-Xylene	100	U	100	4.0	
156-60-5	trans-1,2-Dichloroethene	**57**	I	100	6.7	
10061-02-6	trans-1,3-Dichloropropene	100	U	100	4.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	9/19/12 05:49	
Dibromofluoromethane	98	89-119	9/19/12 05:49	
Toluene-d8	100	87-121	9/19/12 05:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 0922
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-IW0002DI-052.5-20120913	**Units:**	µg/L
Lab Code:	R1206126-015	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method: RSK 175

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Ethane	**30**		25	25	NA	9/20/12 14:39		310244	
Ethene	**1600**		25	25	NA	9/20/12 14:39		310244	
Methane	**2700**		50	50	NA	9/20/12 14:49		310244	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1102
Sample Matrix:	Water	**Date Received:**	9/14/12
Sample Name:	LC34-IW0076-075.0-20120913		
Lab Code:	R1206126-016	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	**3.1**		mg/L	1.0	1	NA	9/24/12 23:49	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1102
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/17/12 20:37
Sample Name:	LC34-IW0076-075.0-20120913	**Units:**	µg/L
Lab Code:	R1206126-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309687
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091712\F9406.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	**87**		5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1102
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/17/12 20:37
Sample Name:	LC34-IW0076-075.0-20120913	**Units:**	µg/L
Lab Code:	R1206126-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309687
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091712\F9406.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.49**	I	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	**3.5**	I	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**3.9**	I	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	9/17/12 20:37	
Dibromofluoromethane	99	89-119	9/17/12 20:37	
Toluene-d8	103	87-121	9/17/12 20:37	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	9/13/12 1102
Sample Matrix:	Water	**Date Received:**	9/14/12
		Date Analyzed:	9/20/12 15:16
Sample Name:	LC34-IW0076-075.0-20120913	**Units:**	µg/L
Lab Code:	R1206126-016	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star967.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	2.5	U	2.5	
74-85-1	Ethene	**6.7**		2.5	
74-82-8	Methane	**210**		2.5	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1206126-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	9/22/12 10:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1206126-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC), Average	9060A	1.0	U	mg/L	1.0	1	NA	9/24/12 18:50	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/17/12 11:48
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210841-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309687
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091712\F9390.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/17/12 11:48
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210841-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309687
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091712\F9390.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	9/17/12 11:48	
Dibromofluoromethane	97	89-119	9/17/12 11:48	
Toluene-d8	104	87-121	9/17/12 11:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/18/12 10:54
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210928-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9418.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/18/12 10:54
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210928-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309911
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9418.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/18/12 10:54	
Dibromofluoromethane	94	89-119	9/18/12 10:54	
Toluene-d8	98	87-121	9/18/12 10:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/18/12 23:47
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210929-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9444.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.25	
79-00-5	1,1,2-Trichloroethane	5.0	U	5.0	0.34	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.57	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	0.23	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	0.74	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	0.24	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	0.21	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	0.36	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	0.20	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	0.20	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	0.20	
71-36-3	n-Butanol	250	U	250	18	
78-93-3	2-Butanone (MEK)	10	U	10	0.81	
591-78-6	2-Hexanone	10	U	10	1.7	
108-10-1	4-Methyl-2-pentanone	10	U	10	0.67	
67-64-1	Acetone	10	U	10	1.3	
71-43-2	Benzene	5.0	U	5.0	0.20	
75-27-4	Bromodichloromethane	5.0	U	5.0	0.32	
75-25-2	Bromoform	5.0	U	5.0	0.42	
74-83-9	Bromomethane	5.0	U	5.0	0.29	
75-15-0	Carbon Disulfide	10	U	10	0.22	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	0.45	
108-90-7	Chlorobenzene	5.0	U	5.0	0.29	
75-00-3	Chloroethane	5.0	U	5.0	0.24	
67-66-3	Chloroform	5.0	U	5.0	0.25	
74-87-3	Chloromethane	5.0	U	5.0	0.21	
110-82-7	Cyclohexane	10	U	10	0.25	
124-48-1	Dibromochloromethane	5.0	U	5.0	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	0.46	
75-09-2	Dichloromethane	5.0	U	5.0	0.32	
100-41-4	Ethylbenzene	5.0	U	5.0	0.20	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/18/12 23:47
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1210929-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method:	8260C	**Analysis Lot:**	309913
Data File Name:	J:\ACQUDATA\MSVOA8\DATA\091812\F9444.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	0.20	
79-20-9	Methyl Acetate	10	U	10	0.43	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	0.29	
108-87-2	Methylcyclohexane	10	U	10	0.27	
100-42-5	Styrene	5.0	U	5.0	0.20	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	0.30	
108-88-3	Toluene	5.0	U	5.0	0.20	
79-01-6	Trichloroethene (TCE)	5.0	U	5.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	0.20	
75-01-4	Vinyl Chloride	5.0	U	5.0	0.32	
156-59-2	cis-1,2-Dichloroethene	5.0	U	5.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	0.24	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.33	
123-86-4	n-Butyl Acetate	5.0	U	5.0	0.39	
95-47-6	o-Xylene	5.0	U	5.0	0.20	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	0.33	
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	9/18/12 23:47	
Dibromofluoromethane	98	89-119	9/18/12 23:47	
Toluene-d8	102	87-121	9/18/12 23:47	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/19/12 09:20
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1211017-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310243
Data File Name:	star706.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	1.0	U	1.0	

Client:	GeoSyntec Consultants	**Service Request:**	R1206126
Project:	ESTCP PED LC34 9/13/12	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	9/20/12 09:12
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1211018-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	310244
Data File Name:	star728.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	Note
74-84-0	Ethane	1.0	U	1.0	
74-85-1	Ethene	1.0	U	1.0	
74-82-8	Methane	1.0	U	1.0	

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/22/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1206126-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	9.41	10.0	94	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/24/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1206126-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC), Average	9060A	9.64	10.0	96	86 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309687

Lab Control Sample
RQ1210841-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.9	20.0	94	67 - 121
1,1,2,2-Tetrachloroethane	20.9	20.0	104	72 - 124
1,1,2-Trichloroethane	20.1	20.0	100	81 - 117
1,1,2-Trichloro-1,2,2-trifluoroethane	16.4	20.0	82	60 - 122
1,1-Dichloroethane (1,1-DCA)	22.4	20.0	112	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.5	20.0	102	67 - 119
1,2,4-Trichlorobenzene	22.1	20.0	110	70 - 128
1,2-Dibromo-3-chloropropane (DBCP)	20.2	20.0	101	64 - 131
1,2-Dibromoethane	20.4	20.0	102	81 - 118
1,2-Dichlorobenzene	20.5	20.0	102	80 - 119
1,2-Dichloroethane	18.4	20.0	92	72 - 130
1,2-Dichloropropane	21.0	20.0	105	83 - 119
1,3-Dichlorobenzene	20.5	20.0	103	79 - 121
1,4-Dichlorobenzene	20.0	20.0	100	79 - 119
n-Butanol	800	1010	80	49 - 182
2-Butanone (MEK)	19.5	20.0	97	60 - 133
2-Hexanone	18.1	20.0	91	61 - 131
4-Methyl-2-pentanone	18.0	20.0	90	61 - 132
Acetone	18.6	20.0	93	64 - 133
Benzene	20.5	20.0	103	78 - 118
Bromodichloromethane	20.1	20.0	100	79 - 123
Bromoform	18.8	20.0	94	69 - 126
Bromomethane	19.6	20.0	98	49 - 124
Carbon Disulfide	20.4	20.0	102	67 - 138
Carbon Tetrachloride	18.6	20.0	93	64 - 129
Chlorobenzene	20.6	20.0	103	80 - 121
Chloroethane	19.4	20.0	97	72 - 130
Chloroform	20.7	20.0	103	75 - 123
Chloromethane	19.1	20.0	95	55 - 139
Cyclohexane	20.0	20.0	100	55 - 132
Dibromochloromethane	19.5	20.0	97	78 - 127
Dichlorodifluoromethane (CFC 12)	16.3	20.0	81	45 - 147

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/17/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309687

Lab Control Sample
RQ1210841-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.4	20.0	107	73 - 122
Ethylbenzene	21.0	20.0	105	75 - 123
Isopropylbenzene (Cumene)	20.7	20.0	103	75 - 139
Methyl Acetate	18.3	20.0	92	65 - 131
Methyl tert-Butyl Ether	22.2	20.0	111	75 - 116
Methylcyclohexane	20.3	20.0	102	59 - 127
Styrene	21.2	20.0	106	80 - 121
Tetrachloroethene (PCE)	19.4	20.0	97	71 - 127
Toluene	20.7	20.0	104	77 - 120
Trichloroethene (TCE)	19.7	20.0	98	75 - 122
Trichlorofluoromethane (CFC 11)	17.9	20.0	89	64 - 134
Vinyl Chloride	19.3	20.0	97	68 - 139
cis-1,2-Dichloroethene	22.2	20.0	111	77 - 123
cis-1,3-Dichloropropene	19.9	20.0	100	77 - 125
m,p-Xylenes	42.6	40.0	106	77 - 124
n-Butyl Acetate	19.5	20.0	97	61 - 126
o-Xylene	21.9	20.0	110	77 - 131
trans-1,2-Dichloroethene	21.8	20.0	109	72 - 120
trans-1,3-Dichloropropene	18.4	20.0	92	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/18/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309911

Lab Control Sample
RQ1210928-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	19.7	20.0	98	67 - 121
1,1,2,2-Tetrachloroethane	20.6	20.0	103	72 - 124
1,1,2-Trichloroethane	18.7	20.0	93	81 - 117
1,1,2-Trichloro-1,2,2-trifluoroethane	18.6	20.0	93	60 - 122
1,1-Dichloroethane (1,1-DCA)	23.1	20.0	116	76 - 124
1,1-Dichloroethene (1,1-DCE)	22.5	20.0	113	67 - 119
1,2,4-Trichlorobenzene	21.4	20.0	107	70 - 128
1,2-Dibromo-3-chloropropane (DBCP)	19.4	20.0	97	64 - 131
1,2-Dibromoethane	20.1	20.0	100	81 - 118
1,2-Dichlorobenzene	20.5	20.0	102	80 - 119
1,2-Dichloroethane	18.2	20.0	91	72 - 130
1,2-Dichloropropane	20.5	20.0	103	83 - 119
1,3-Dichlorobenzene	20.8	20.0	104	79 - 121
1,4-Dichlorobenzene	19.8	20.0	99	79 - 119
n-Butanol	800	1010	80	49 - 182
2-Butanone (MEK)	20.3	20.0	102	60 - 133
2-Hexanone	18.3	20.0	91	61 - 131
4-Methyl-2-pentanone	18.7	20.0	93	61 - 132
Acetone	19.4	20.0	97	64 - 133
Benzene	20.0	20.0	100	78 - 118
Bromodichloromethane	18.9	20.0	95	79 - 123
Bromoform	18.5	20.0	93	69 - 126
Bromomethane	20.6	20.0	103	49 - 124
Carbon Disulfide	23.2	20.0	116	67 - 138
Carbon Tetrachloride	19.3	20.0	97	64 - 129
Chlorobenzene	20.9	20.0	104	80 - 121
Chloroethane	20.5	20.0	102	72 - 130
Chloroform	21.0	20.0	105	75 - 123
Chloromethane	20.6	20.0	103	55 - 139
Cyclohexane	19.2	20.0	96	55 - 132
Dibromochloromethane	19.3	20.0	96	78 - 127
Dichlorodifluoromethane (CFC 12)	17.7	20.0	89	45 - 147

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/18/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309911

Lab Control Sample
RQ1210928-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dichloromethane	21.8	20.0	109	73 - 122
Ethylbenzene	20.3	20.0	102	75 - 123
Isopropylbenzene (Cumene)	21.8	20.0	109	75 - 139
Methyl Acetate	19.4	20.0	97	65 - 131
Methyl tert-Butyl Ether	22.5	20.0	113	75 - 116
Methylcyclohexane	19.5	20.0	98	59 - 127
Styrene	20.8	20.0	104	80 - 121
Tetrachloroethene (PCE)	18.5	20.0	92	71 - 127
Toluene	19.9	20.0	100	77 - 120
Trichloroethene (TCE)	19.1	20.0	96	75 - 122
Trichlorofluoromethane (CFC 11)	19.4	20.0	97	64 - 134
Vinyl Chloride	20.2	20.0	101	68 - 139
cis-1,2-Dichloroethene	22.3	20.0	112	77 - 123
cis-1,3-Dichloropropene	19.1	20.0	95	77 - 125
m,p-Xylenes	42.9	40.0	107	77 - 124
n-Butyl Acetate	17.9	20.0	90	61 - 126
o-Xylene	21.7	20.0	109	77 - 131
trans-1,2-Dichloroethene	22.2	20.0	111	72 - 120
trans-1,3-Dichloropropene	18.1	20.0	91	69 - 127

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/18/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309913

Lab Control Sample
RQ1210929-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.7	20.0	104	67 - 121
1,1,2,2-Tetrachloroethane	21.4	20.0	107	72 - 124
1,1,2-Trichloroethane	20.5	20.0	102	81 - 117
1,1,2-Trichloro-1,2,2-trifluoroethane	19.0	20.0	95	60 - 122
1,1-Dichloroethane (1,1-DCA)	23.9	20.0	119	76 - 124
1,1-Dichloroethene (1,1-DCE)	22.6	20.0	113	67 - 119
1,2,4-Trichlorobenzene	22.5	20.0	112	70 - 128
1,2-Dibromo-3-chloropropane (DBCP)	21.5	20.0	107	64 - 131
1,2-Dibromoethane	21.5	20.0	107	81 - 118
1,2-Dichlorobenzene	21.5	20.0	108	80 - 119
1,2-Dichloroethane	19.8	20.0	99	72 - 130
1,2-Dichloropropane	22.0	20.0	110	83 - 119
1,3-Dichlorobenzene	21.4	20.0	107	79 - 121
1,4-Dichlorobenzene	21.2	20.0	106	79 - 119
n-Butanol	826	1010	82	49 - 182
2-Butanone (MEK)	21.7	20.0	109	60 - 133
2-Hexanone	19.3	20.0	96	61 - 131
4-Methyl-2-pentanone	20.6	20.0	103	61 - 132
Acetone	22.0	20.0	110	64 - 133
Benzene	20.9	20.0	105	78 - 118
Bromodichloromethane	20.0	20.0	100	79 - 123
Bromoform	19.6	20.0	98	69 - 126
Bromomethane	21.9	20.0	109	49 - 124
Carbon Disulfide	23.1	20.0	115	67 - 138
Carbon Tetrachloride	20.3	20.0	102	64 - 129
Chlorobenzene	21.3	20.0	107	80 - 121
Chloroethane	21.9	20.0	110	72 - 130
Chloroform	21.9	20.0	109	75 - 123
Chloromethane	20.5	20.0	102	55 - 139
Cyclohexane	20.4	20.0	102	55 - 132
Dibromochloromethane	20.4	20.0	102	78 - 127
Dichlorodifluoromethane (CFC 12)	18.0	20.0	90	45 - 147

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/18/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 309913

Lab Control Sample
RQ1210929-04

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
Dichloromethane	22.6	20.0	113		73 - 122
Ethylbenzene	21.2	20.0	106		75 - 123
Isopropylbenzene (Cumene)	22.4	20.0	112		75 - 139
Methyl Acetate	20.0	20.0	100		65 - 131
Methyl tert-Butyl Ether	24.1	20.0	121	*	75 - 116
Methylcyclohexane	20.6	20.0	103		59 - 127
Styrene	22.1	20.0	110		80 - 121
Tetrachloroethene (PCE)	19.1	20.0	96		71 - 127
Toluene	20.8	20.0	104		77 - 120
Trichloroethene (TCE)	20.8	20.0	104		75 - 122
Trichlorofluoromethane (CFC 11)	19.8	20.0	99		64 - 134
Vinyl Chloride	21.2	20.0	106		68 - 139
cis-1,2-Dichloroethene	22.8	20.0	114		77 - 123
cis-1,3-Dichloropropene	20.0	20.0	100		77 - 125
m,p-Xylenes	44.3	40.0	111		77 - 124
n-Butyl Acetate	20.1	20.0	101		61 - 126
o-Xylene	22.5	20.0	112		77 - 131
trans-1,2-Dichloroethene	22.6	20.0	113		72 - 120
trans-1,3-Dichloropropene	18.9	20.0	94		69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/19/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 310243

Lab Control Sample
RQ1211017-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Ethane	28.8	26.0	111	82 - 127
Ethene	25.7	24.3	106	76 - 119
Methane	29.1	26.2	111	82 - 126

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP PED LC34 9/13/12
Sample Matrix: Water

Service Request: R1206126
Date Analyzed: 9/20/12

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 310244

	Lab Control Sample RQ1211018-02			Duplicate Lab Control Sample RQ1211018-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	26.3	26.0	101	31.1	26.0	119	82 - 127	17	30
Ethene	23.8	24.3	98	27.7	24.3	114	76 - 119	15	30
Methane	26.0	26.2	99	31.9	26.2	121	82 - 126	20	30

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 **Project Number:** FO0552B

Project Manager: Rebecca Daprato **Company:** Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. **Phone:** 321-269-5880

City, State, Zip: Titusville, FL 32780 **FAX:** 321-269-5813

Sampler's Signature:

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
						Analysis Requested									
LC34-BW0001A-024.5-201209	9-13-12	10:55	-001	W	9	3	3	3							
LC34-BW0001B-031.5-201209	9-13-12	11:23	-002	W	9	3	3	3							
LC34-BW0001C-038.5-201209	9-13-12	11:17	-003	W	9	3	3	3							
LC34-BW0001D-045.5-201209	9-13-12	12:13	-004	W	9	3	3	3							
LC34-BW0001E-052.5-201209	9-13-12	11:53	-005	W	9	3	3	3							
LC34-BW0001F-059.5-201209	9-13-12	11:53	-006	W	9	3	3	3							

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: FO0552B

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1206126 5
GeoSyntec Consultants
ESTCP PED LC34 9/13/12

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: David Sizemore	Printed Name:	Printed Name:	Printed Name:
Firm: GeoSyntec	Firm:	Firm:	Firm: ALS
Date/Time: 9/13/12 1700	Date/Time: 9/13/12 1700	Date/Time:	Date/Time: 9/14/12 0930

FO0552

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FO0552B

Project Manager: Rebecca Dapratto Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature: _____

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
~~LC34-BW0003A-024.5-201209~~	~~9-11-12~~	~~13:18~~		~~W~~	~~9~~	~~3~~	~~3~~	~~3~~	DO MS						
~~LC34-BW0003B-031.5-201209~~	~~9-11-12~~	~~17:45~~		~~W~~	~~9~~	~~3~~	~~3~~	~~3~~							
LC34-BW0003C-038.5-201209	9-13-12	08:35	001	W	9	3	3	3							
LC34-BW0003D-045.5-201209	9-13-12	10:08	002	W	9	3	3	3							
LC34-BW0003E-052.5-201209	9-13-12	09:38	003	W	9	3	3	3							
LC34-BW0003F-059.5-201209	9-13-12	09:10	004 DO	W	9	3	3	3							

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

Invoice Information

P.O. # _____

Bill to: FO0552B

REPORT REQUIREMENTS

_____ I. Routine Report: Results and Method Blank (Surrogate, as required)

_____ II. Results w/ QC (Dup., MS, MSD as req)

x III. Results (with QC and Calibration Summaries)

_____ IV. ASP-B

_____ V. CLP

x EDD?: NASA KEDD

Comments/Special Instructions:

R1206126

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: FED EX	Signature:	Signature:
Printed Name: David Sumore	Printed Name:	Printed Name:	Printed Name:
Firm: GeoSyntec	Firm:	Firm:	Firm: KLS
Date/Time: 9/13/12 1700	Date/Time: 9/13/12 1700	Date/Time:	Date/Time: 9/14/12 0930

29969

Columbia Analytical Services

1565 Jefferson Rd., Bldg. 300, Ste. 360, Rochester, NY 14623
PH 585-288-5380 FAX 585-288-8475

Project Name: ESTCP PED LC34 Project Number: FO0552B

Project Manager: Rebecca Dapratto Company: Geosyntec Consultants

Company/Address: 6770 S. Washington Ave. Phone: 321-269-5880

City, State, Zip: Titusville, FL 32780 FAX: 321-269-5813

Sampler's Signature: _____

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	VOCs (8260C) plus n-butyl acetate	TOC (9060A)	MEEs (RSK 175)							REMARKS
					Analysis Requested										
LC34-RW0007-038.5-201209___	9-13-12	09:51	911	W	9	3	3	3							
LC34-RW0008-052.0-201209___	9-13-12	10:20	9/14/12	W	9	3	3	3							
LC34-IW0002I-027.5-201209___	9-13-12	08:24	RB013	W	9	3	3	3							
LC34-IW0002D-037.5-201209___	9-13-12	08:51	014	W	9	3	3	3							
LC34-IW0002D1-052.5-201209___	9-13-12	09:22	015	W	9	3	3	3							
LC34-IW0076-075.0-201209___	9-13-12	11:07	016 DUP	W	9	3	3	3							

TURNAROUND REQUIREMENTS

____ 24 hr ____ 48 hr ____ 5 BD

__X__ Standard (15 BD)

____ Provide FAX Preliminary Results

Requested Report Date:

REPORT REQUIREMENTS

____ I. Routine Report: Results and Method Blank (Surrogate, as required)

____ II. Results w/ QC (Dup., MS, MSD as req)

X ____ III. Results (with QC and Calibration Summaries)

____ IV. ASP-B

____ V. CLP

X EDD?: NASA KEDD

Comments/Special Instructions:

R1206126

Invoice Information

P.O. # _____

Bill to: FO0552B

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Dan Sizemore	Printed Name: Gabby Latimer	Printed Name:	Printed Name:
Firm: GeoSyntec	Firm: ALS	Firm:	Firm:
Date/Time: 9/13/12 1700	Date/Time: 9/14/12 0930	Date/Time:	Date/Time:

6609

Cooler Receipt and Preservation Check Form

Project/Client Aeogates Folder Number R120126

Cooler received on 9/14/12 by: KB COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?			YES	(NO)	
2.	Were custody papers properly filled out (ink, signed, etc.)?			(YES)	NO	
3.	Did all bottles arrive in good condition (unbroken)?			(YES)	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?			(YES)	NO	N/A
5.	Were **Ice** or **Ice packs** present?			(YES)	NO	
6.	Where did the bottles originate?			ALS/ROC	(CLIENT)	
7.	Temperature of cooler(s) upon receipt:	5.8	5.9°			
	Is the temperature within 0° - 6° C?:	(Yes)	(Yes)	Yes	Yes	Yes
	If No, Explain Below	~~No~~	No	No	No	No

Date/Time Temperatures Taken: 9/14/12 0940

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition &Client Approval to Run Samples:

All Samples held in storage location R-052 by KB on 9/14/12 at 0945

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: KB 9/14/12

Cooler Breakdown: Date: 9/14/12 Time: 1649 by: AHH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received *-	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4			WC U2071A	07/13				
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	"	"	4111100	07/13				

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 2-143-002, 2-143-001

Other Comments:

Bubbles: IW0070 (2 vials)
LC 34BW0001 B (2 vials)
RW0007 (2 vials)

PC Secondary Review: KB 10/1/12

*significant air bubbles: VOA > 5-6 mm , WC > 1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc

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(519) 822-2265

Certificate of Analysis: Gene-Trac® *Dehalococcoides* Assay

Customer: Rebecca Daprato, Geosyntec Consultants

Project: LC34

Customer Reference: FO0552B

SiREM Reference: S-2609

Report Date: 1-Oct-12

Data Files: iQ5-GBA-QPCR-0033
MyiQ-DHC-QPCR-0937
MyiQ-DB-DHC-QPCR-0314

Table 1a: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent Dhc *	*Dehalococcoides* Enumeration/Liter **
LC34-RW0007-038.5-20120913	DHC-8560	13-Sep-12	Groundwater	1 - 3 %	2×10^7
LC34-BW0001C-038.5-20120913	DHC-8561	13-Sep-12	Groundwater	9 - 24 %	1×10^8
LC34-BW0003C-038.5-20120913	DHC-8562	13-Sep-12	Groundwater	12 - 31 %	1×10^8
LC34-RW0008-052.0-20120913	DHC-8563	13-Sep-12	Groundwater	3 - 10 %	6×10^7
LC34-BW0001E-052.5-20120913	DHC-8564	13-Sep-12	Groundwater	1 - 4 %	2×10^7
LC34-BW0003E-052.5-20120913	DHC-8565	13-Sep-12	Groundwater	0.3 - 0.8 %	2×10^6

Notes:

* Percent *Dehalococcoides* (Dhc) in microbial population. This value is calculated by dividing the number of Dhc 16S ribosomal ribonucleic acid (rRNA) gene copies by the total number of bacteria as estimated by the mass of DNA extracted from the sample. Range represents normal variation in Dhc enumeration.

** Based on quantification of Dhc 16S rRNA gene copies. Dhc are generally reported to contain one 16S rRNA gene copy per cell; therefore, this number is often interpreted to represent the number of Dhc cells present in the sample.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *Dehalococcoides* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.
E Extracted genomic DNA was not detected in sample.

Analyst: Kela Bartle

Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar

Ximena Druar, B.Sc.
Genetic Testing Coordinator

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Guelph ON N1G 5G3
(519) 822-2265

Certificate of Analysis: Gene-Trac® *Dehalococcoides* Assay

Customer: Rebecca Daprato, Geosyntec Consultants
Project: LC34
Customer Reference: FO0552B

SiREM Reference: S-2609
Report Date: 1-Oct-12
Data Files: iQ5-GBA-QPCR-0033
MyiQ-DHC-QPCR-0937
MyiQ-DB-DHC-QPCR-0314

Table 1b: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent Dhc *	*Dehalococcoides* Enumeration/Gram **
LC34-DPT0349-043.5-20120910	DHC-8566	10-Sep-12	Soil	0.0002 - 0.0005 %	2×10^3 J
LC34-DPT0349-048.0-20120910	DHC-8567	10-Sep-12	Soil	0.0002 - 0.0005 %	3×10^3 J
LC34-DPT0350-037.0-20120910	DHC-8568	10-Sep-12	Soil	0.0002 - 0.0007 %	4×10^3 J
LC34-DPT0350-047.0-20120910	DHC-8569	10-Sep-12	Soil	NA	7×10^5 U, I
LC34-DPT0350-050.0-20120910	DHC-8570	10-Sep-12	Soil	0.08 - 0.2 %	1×10^6
LC34-DPT0351-045.0-20120911	DHC-8571	11-Sep-12	Soil	0.04 - 0.1 %	7×10^5
LC34-DPT0351-047.0-20120911	DHC-8572	11-Sep-12	Soil	NA	8×10^3 U, I
LC34-DPT0351-048.5-20120911	DHC-8573	11-Sep-12	Soil	0.002 - 0.007 %	3×10^4

Notes:

* Percent *Dehalococcoides* (Dhc) in microbial population. This value is calculated by dividing the number of Dhc 16S ribosomal ribonucleic acid (rRNA) gene copies by the total number of bacteria as estimated by the mass of DNA extracted from the sample. Range represents normal variation in Dhc enumeration.

** Based on quantification of Dhc 16S rRNA gene copies. Dhc are generally reported to contain one 16S rRNA gene copy per cell; therefore, this number is often interpreted to represent the number of Dhc cells present in the sample.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *Dehalococcoides* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.
E Extracted genomic DNA was not detected in sample.

Analyst: Kela Bartle
Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar
Ximena Druar, B.Sc.
Genetic Testing Coordinator

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Certificate of Analysis: Gene-Trac® VC, Vinyl Chloride Reductase (vcrA) Assay

Customer: Rebecca Daprato, Geosyntec Consultants
Project: LC34
Customer Reference: FO0552B

SiREM Reference: S-2609
Report Date: 1-Oct-12
Data Files: MyiQ-DB-VC-QPCR-0235
MyiQ-VC-QPCR-0501
VC-QPCR-check-gel-0521

Table 1c: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent *vcrA* *	Vinyl Chloride Reductase (*vcrA*) Gene Copies/Liter
LC34-RW0007-038.5-20120913	VCR-3399	13-Sep-12	Groundwater	0.6 - 2 %	1×10^7
LC34-BW0001C-038.5-20120913	VCR-3400	13-Sep-12	Groundwater	15 - 38 %	2×10^8
LC34-BW0003C-038.5-20120913	VCR-3401	13-Sep-12	Groundwater	10 - 27 %	1×10^8
LC34-RW0008-052.0-20120913	VCR-3402	13-Sep-12	Groundwater	3 - 10 %	6×10^7
LC34-BW0001E-052.5-20120913	VCR-3403	13-Sep-12	Groundwater	3 - 8 %	3×10^7
LC34-BW0003E-052.5-20120913	VCR-3404	13-Sep-12	Groundwater	0.7 - 2 %	5×10^6

Notes:

* Percentage of bacteria in the microbial population that harbor the *vcrA* gene. This value is calculated by dividing the measured number of cells haboring the vinyl chloride reductase A (*vcrA*) gene by the total number of bacteria in the sample estimated using the mass of DNA extracted from the sample. Range represents normal variation in enumeration of *vcrA*.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *vcrA* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.
C Correction factor applied to correct for non-specific PCR amplification products.

Analyst: Kela Bartle
Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar
Ximena Druar, B.Sc.
Genetic Testing Coordinator

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(519) 822-2265

Certificate of Analysis: Gene-Trac® VC, Vinyl Chloride Reductase (vcrA) Assay

Customer: Rebecca Daprato, Geosyntec Consultants

Project: LC34

Customer Reference: FO0552B

SiREM Reference: S-2609

Report Date: 1-Oct-12

Data Files: MyiQ-DB-VC-QPCR-0235
MyiQ-VC-QPCR-0501
VC-QPCR-check-gel-0521

Table 1d: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent *vcrA* *	Vinyl Chloride Reductase (*vcrA*) Gene Copies/Gram
LC34-DPT0349-043.5-20120910	VCR-3405	10-Sep-12	Soil	NA	6×10^3 U
LC34-DPT0349-048.0-20120910	VCR-3406	10-Sep-12	Soil	NA	7×10^3 U
LC34-DPT0350-037.0-20120910	VCR-3407	10-Sep-12	Soil	NA	6×10^3 U
LC34-DPT0350-050.0-20120910	VCR-3408	10-Sep-12	Soil	0.1 - 0.3 %	1×10^6
LC34-DPT0351-045.0-20120911	VCR-3409	11-Sep-12	Soil	0.06 - 0.2 %	1×10^6
LC34-DPT0351-048.5-20120911	VCR-3410	11-Sep-12	Soil	0.004 - 0.01 %	6×10^4

Notes:

* Percentage of bacteria in the microbial population that harbor the *vcrA* gene. This value is calculated by dividing the measured number of cells haboring the vinyl chloride reductase A (*vcrA*) gene by the total number of bacteria in the sample estimated using the mass of DNA extracted from the sample. Range represents normal variation in enumeration of *vcrA*.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.
U Not detected, associated value is the quantification limit.
B Analyte was also detected in the method blank.
NA Not applicable as *vcrA* not detected and/or quantifiable DNA not extracted from the sample.
I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.
C Correction factor applied to correct for non-specific PCR amplification products.

Analyst: Kela Bartle
Kela Bartle, B.Sc.
Laboratory Technician

Approved: Ximena Druar
Ximena Druar, B.Sc.
Genetic Testing Coordinator

Table 2.1: Detailed Test Parameters, Gene-Trac Test Reference S-2609

Customer Sample ID	LC34-RW0007-038.5-20120913	LC34-BW0001C-038.5-20120913	LC34-BW0003C-038.5-20120913
SiREM Dhc Sample ID	DHC-8560	DHC-8561	DHC-8562
SiREM *vcrA* Sample ID	VCR-3399	VCR-3400	VCR-3401
Date Received	17-Sep-12	17-Sep-12	17-Sep-12
Sample Temperature	6 ºC	6 ºC	6 ºC
Filtration Date	18-Sep-12	18-Sep-12	18-Sep-12
Volume Used for DNA Extraction	500 mL	500 mL	500 mL
DNA Extraction Date	25-Sep-12	25-Sep-12	25-Sep-12
DNA Concentration in Sample (extractable)	3692 ng/L	2261 ng/L	1820 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
Dhc qPCR Date Analyzed	26-Sep-12	26-Sep-12	26-Sep-12
***vcrA* qPCR Date Analyzed**	27-Sep-12	27-Sep-12	27-Sep-12
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed
Comments	- -	- -	- -

Notes:

Refer to Tables 3 & 4 for detailed results of controls.
vcrA = vinyl chloride reductase
°C = degrees Celsius
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = Dehalococcoides
ng/L = nanograms per liter
mL = milliliters
DNA = Deoxyribonucleic acid

Table 2.2: Detailed Test Parameters, Gene-Trac Test Reference S-2609

Customer Sample ID	LC34-RW0008-052.0-20120913	LC34-BW0001E-052.5-20120913	LC34-BW0003E-052.5-20120913
SiREM Dhc Sample ID	DHC-8563	DHC-8564	DHC-8565
SiREM *vcrA* Sample ID	VCR-3402	VCR-3403	VCR-3404
Date Received	17-Sep-12	17-Sep-12	17-Sep-12
Sample Temperature	6 ºC	6 ºC	6 ºC
Filtration Date	18-Sep-12	18-Sep-12	18-Sep-12
Volume Used for DNA Extraction	500 mL	500 mL	500 mL
DNA Extraction Date	25-Sep-12	25-Sep-12	25-Sep-12
DNA Concentration in Sample (extractable)	3491 ng/L	1986 ng/L	1485 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
Dhc qPCR Date Analyzed	26-Sep-12	26-Sep-12	26-Sep-12
***vcrA* qPCR Date Analyzed**	27-Sep-12	27-Sep-12	27-Sep-12
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed
Comments	- -	- -	- -

Notes:

Refer to Tables 3 & 4 for detailed results of controls.
vcrA = vinyl chloride reductase
°C = degrees Celsius
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = Dehalococcoides
ng/L = nanograms per liter
mL = milliliters
DNA = Deoxyribonucleic acid

Table 2.3: Detailed Test Parameters, Gene-Trac Test Reference S-2609

Customer Sample ID	LC34-DPT0349-043.5-20120910	LC34-DPT0349-048.0-20120910	LC34-DPT0350-037.0-20120910	LC34-DPT0350-047.0-20120910
SiREM Dhc Sample ID	DHC-8566	DHC-8567	DHC-8568	DHC-8569
SiREM *vcrA* Sample ID	VCR-3405	VCR-3406	VCR-3407	NA
Date Received	17-Sep-12	17-Sep-12	17-Sep-12	17-Sep-12
Sample Temperature	6 ºC	6 ºC	6 ºC	6 ºC
Filtration Date	NA	NA	NA	NA
Weight Used for DNA Extraction	0.22 g	0.18 g	0.20 g	0.18 g
DNA Extraction Date	25-Sep-12	25-Sep-12	25-Sep-12	25-Sep-12
DNA Concentration in Sample (extractable)	2552 ng/g	3015 ng/g	2901 ng/g	2747 ng/g
PCR Amplifiable DNA	Detected	Detected	Detected	ND
Dhc qPCR Date Analyzed	26-Sep-12	26-Sep-12	26-Sep-12	26-Sep-12
***vcrA* qPCR Date Analyzed**	27-Sep-12	27-Sep-12	27-Sep-12	NA
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed	Passed
Comments	- -	- -	- -	Sample not tested for *vcrA* as it was ND for Dhc.

Notes:

Refer to Tables 3 & 4 for detailed results of controls.
NA - not applicable
ND = not detected
°C = degrees Celsius
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = Dehalococcoides
vcrA = vinyl chloride reductase
ng/g = nanograms per gram
g = gram
DNA = Deoxyribonucleic acid

Table 2.4: Detailed Test Parameters, Gene-Trac Test Reference S-2609

Customer Sample ID	LC34-DPT0350-050.0-20120910	LC34-DPT0351-045.0-20120911	LC34-DPT0351-047.0-20120911	LC34-DPT0351-048.5-20120911
SiREM Dhc Sample ID	DHC-8570	DHC-8571	DHC-8572	DHC-8573
SiREM *vcrA* Sample ID	VCR-3408	VCR-3409	NA	VCR-3410
Date Received	17-Sep-12	17-Sep-12	17-Sep-12	17-Sep-12
Sample Temperature	6 ºC	6 ºC	6 ºC	6 ºC
Filtration Date	NA	NA	NA	NA
Weight Used for DNA Extraction	0.25 g	0.19 g	0.15 g	0.20 g
DNA Extraction Date	25-Sep-12	25-Sep-12	25-Sep-12	25-Sep-12
DNA Concentration in Sample (extractable)	2498 ng/g	3656 ng/g	3881 ng/g	2796 ng/g
PCR Amplifiable DNA	Detected	Detected	ND	Detected
Dhc qPCR Date Analyzed	26-Sep-12	26-Sep-12	26-Sep-12	26-Sep-12
***vcrA* qPCR Date Analyzed**	27-Sep-12	27-Sep-12	NA	27-Sep-12
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed	Passed
Comments	- -	- -	Sample not tested for *vcrA* as it was ND for Dhc.	- -

Notes:

Refer to Tables 3 & 4 for detailed results of controls.
NA - not applicable
ND = not detected
°C = degrees Celsius
PCR = polymerase chain reaction
qPCR = quantitative PCR
Dhc = Dehalococcoides
vcrA = vinyl chloride reductase
ng/g = nanograms per gram
g = gram
DNA = Deoxyribonucleic acid

Table 3: Experimental Control Results, Gene-Trac Test Reference S-2609

Laboratory Control	Analysis Date	Control Description	Spiked Dhc 16S rRNA Gene Copies per Liter	Recovered Dhc 16S rRNA Gene Copies per Liter	Comments
Positive Control Low Concentration	26-Sep-12	qPCR with KB1 genomic DNA (CSLD-0574)	1.4×10^5	1.2×10^5	- -
Positive Control High Concentration	26-Sep-12	qPCR with KB1 genomic DNA (CSHD-0574)	1.8×10^7	1.4×10^7	- -
DNA Extraction Blank	26-Sep-12	DNA extraction sterile water (FB-1761)	0	1.0×10^3 J	See Note 1
Negative Control	26-Sep-12	Tris Reagent Blank (TBD-0534)	0	2.6×10^3 U	- -

Laboratory Control	Analysis Date	Control Description	Spiked Dhc 16S rRNA Gene Copies per Gram	Recovered Dhc 16S rRNA Gene Copies per Gram	Comments
Positive Control Low Concentration	26-Sep-12	qPCR with KB1 genomic DNA (CSLD-0574)	2.7×10^5	2.4×10^5	- -
Positive Control High Concentration	26-Sep-12	qPCR with KB1 genomic DNA (CSHD-0574)	3.6×10^7	2.7×10^7	- -
DNA Extraction Blank	26-Sep-12	DNA extraction sterile water (EB-1762)	0	5.2×10^3 U	- -
Negative Control	26-Sep-12	Tris Reagent Blank (TBD-0534)	0	5.2×10^3 U	- -

Notes:

Dhc = *Dehalococcoides*

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

[1]Acceptable as test results for relevant samples are greater than 1 order of magnitude above DNA Extraction Blank test result.

Table 4: Experimental Control Results, Gene-Trac Test Reference S-2609

Laboratory Control	Analysis Date	Control Description	Spiked *vcrA* reductase Gene Copies per Liter	Recovered *vcrA* reductase Gene Copies per Liter	Comments
Positive Control Low Concentration	27-Sep-12	qPCR with KB1 genomic DNA (CSLV-0369)	3.2×10^5	3.3×10^5	- -
Positive Control High Concentration	27-Sep-12	qPCR with KB1 genomic DNA (CSHV-0369)	3.6×10^7	4.3×10^7	- -
DNA Extraction Blank	27-Sep-12	DNA extraction sterile water (FB-1761)	0	2.6×10^3 U	- -
Negative Control	27-Sep-12	Tris Reagent Blank (TBV-0340)	0	2.6×10^3 U	- -

Laboratory Control	Analysis Date	Control Description	Spiked *vcrA* reductase Gene Copies per Gram	Recovered *vcrA* reductase Gene Copies per Gram	Comments
Positive Control Low Concentration	27-Sep-12	qPCR with KB1 genomic DNA (CSLV-0369)	6.4×10^5	6.5×10^5	- -
Positive Control High Concentration	27-Sep-12	qPCR with KB1 genomic DNA (CSHV-0369)	7.2×10^7	8.5×10^7	- -
DNA Extraction Blank	27-Sep-12	DNA extraction sterile water (EB-1762)	0	5.2×10^3 U	- -
Negative Control	27-Sep-12	Tris Reagent Blank (TBV-0340)	0	5.2×10^3 U	- -

Notes:

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

vcrA = vinyl chloride reductase

2314

Chain-of-Custody Form

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www.siremlab.com

Page 1 of 2

Lab # 25-2609

Project Name	LC34
Project #	F00552B
Project Manager	Rebecca Dapnato
Email Address	rdapnato@GeoSyntec.com
Company	GeoSyntec
Address	Titusville, FL
Phone #	321 2695880
Fax #	
Sampler's Signature	
Sampler's Printed Name	F David Sizemore

Analysis

Preservative

Customer Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Gene-Trac Dhc	Gene-Trac VC	Gene-Trac Dhb	Other Information
LC34-RW0007-038.5-20120913	9/13/12	951			X	X		
LC34-BW0001C-038.5-20120913		1127			X	X		
LC34_BW0003C-038.5-20120913		835			X	X		
LC34-RW0008-052.0-20120913		1020			X	X		
LC34-BW0001E-052.5-20120913		1153			X	X		
LC34-BW0003E-052.5-20120913		938			X	X		

Preservative Key
0. None
1. HCl
2. Other _____
3. Other _____

Sample Receipt
Cooler Condition: Good
Cooler Temperature: 6°C
Custody Seals: Yes ☐ No ☒

Billing Information
P.O. #
Bill To:

Turnaround Time Requested
Normal ☐
Rush ☐

For Lab Use Only
Proposal #: _____

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: David Sizemore	Printed Name: FED EX	Printed Name	Printed Name: D. Negpoli	Printed Name	Printed Name
Firm: GeoSyntec	Firm	Firm	Firm: SiREM	Firm	Firm
Date/Time: 9/13/12 1700	Date/Time: 9/13/12 1700	Date/Time	Date/Time: Sept 17 '12 1:50pm	Date/Time	Date/Time

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

2329

Chain-of-Custody Form

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Page 2 of 2 — Lab # RS-2609

Project Name	ESTCP FED LC34
Project #	F00552B
Project Manager	Rebecca Daprato
Email Address	rdaprato@GeoSyntec.com
Company	GeoSyntec
Address	6770 S. Washington Ave Titusville, FL
Phone #	(321) 269-5880
Fax #	
Sampler's Signature	
Sampler's Printed Name	David Siremore

Analysis

Preservative

Gene-Trac Dhc / Gene-Trac VC / Gene-Trac Dhb

Preservative Key
0. None
1. HCl
2. Other _____
3. Other _____

Customer Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Dhc	VC	Dhb	Other Information
LC34-DPT0349-043.5-20120910	9/10/12	1103			X	X		
LC34-DPT0349-048.0-20120910	9/10/12	1136			X	X		
~~LC34-DPT0350~~ DMS							DMS	
LC34-DPT0350-037.0-20120910	9/10/12	1352			X	X		
LC34-DPT0350-047.0-20120910	9/10/12	1450			X	X		Corrected Sample ID's
~~LC34-DPT0350-050.0-201209~~	9/11/12	901			X	X		LC34-DPT0350-045.0-20120911
~~LC34-DPT0350.5-201209~~	9/11/12	919			X	X		LC34-DPT0350-047.0-20120911
~~LC34-DPT0351-048.0-201209~~	9/11/12	929			X	X		LC34-DPT0350-048.5-20120911

Sample Receipt
Cooler Condition: GOOD.
Cooler Temperature: 6°C.
Custody Seals: Yes ☐ No ☒

Billing Information
P.O. #
Bill To:

Turnaround Time Requested
Normal ☐
Rush ☐

For Lab Use Only
Proposal #: _____

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: David Siremore	Printed Name: FED EX	Printed Name	Printed Name: D. Indelicato	Printed Name	Printed Name
Firm: GeoSyntec	Firm	Firm	Firm: SiREM	Firm	Firm
Date/Time: 9/13/12 1700	Date/Time: 9/13/12 1700	Date/Time	Date/Time: Sept 17 '12 1:50pm	Date/Time	Date/Time

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

September 27, 2012 Service Request No: R1206036

Dr. Rebecca Daprato
GeoSyntec Consultants
11490 Westheimer
Suite 150
Houston, TX 77077

Laboratory Results for: ESTCP LC34 FO 0552B

Dear Dr. Daprato:

Enclosed are the results of the sample(s) submitted to our laboratory on September 12, 2012. For your reference, these analyses have been assigned our service request number **R1206036**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Karen.Bunker@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Karen Bunker
Project Manager

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Client:	Geosyntec Consultants	**Service Request No.:**	R1206036
Project:	ESTCP PED LC34/ TR0272 2/13/12	**Date Received:**	9/12/12
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

Twenty-two (22) soil samples were collected by the client on 9/10-11/12 in Terracore samplers and were received for analysis at Columbia Analytical Services on 9/12/12 via a national courier. The samples were received at a cooler temperature of 2.7°C within the guidelines of 0-6°C. Sample locations LC34-DPT0351-053.0-20120911 (CAS # R1206036-011), LC34-DPT0349-040.0-20120910 (R1206036-013), and LC34-DPT0349-046.5-20120910 (R1206036-016) arrived with liquid in the sample bags indicating possible leakage. However, all samples were able to be screened and analyzed.

Organic Compounds

Twenty-two (22) water samples were analyzed for a client specific list of Volatile Organics by Method 8260C. All soils were analyzed for % Solids in order to report all data on a dry weight basis.

Initial Calibration Criteria was met for all samples for 8260C. The Continuing Calibration Verification (CCV) standard exceeded 20% Difference criteria for Bromomethane and Chloromethane on the 9/14/12 and 9/19/12 analytical runs and Acetone on the 9/20/12. All detected concentrations for these compound in samples associated with these CCV's should be considered as estimated.

All surrogate recoveries were within acceptance limits.

Batch QC is included in the report. The Laboratory Control Samples (LCS) and LCS Duplicates (LCSD for Organic Acids only) recoveries were all within QC limits. All Relative Percent Difference (RPD) calculations were acceptable.

Samples required dilutions in order to bring hits within the calibration range of the standards. For samples with hits above the range, the sample is then repeated at the appropriate dilution for the hit. The sample data is merged and reported with the initial surrogate recoveries as per client requirements for this project.

All samples were analyzed within the proper holding time for the method.

Hits between the Minimum Detection Limit (MDL) and Method Reporting Limit (MRL) are flagged as "I", estimated.

The Laboratory Method Blanks were free from contamination except for a low level hit for Bromomethan on the 9/19/12 method blank. Any affected sample hits would be flagged as "V".

No other analytical or QC problems were encountered.

Approved by Raven Beeler **Date** 9/28/12

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1206036

Lab ID	Client ID
R1206036-001	LC34-DPT0350-047.0-20120910
R1206036-002	LC34-DPT0350-048.5-20120910
R1206036-003	LC34-DPT0350-053.0-20120910
R1206036-004	LC34-DPT0351-034.5-20120910
R1206036-005	LC34-DPT0351-037.0-20120910
R1206036-006	LC34-DPT0351-040.0-20120910
R1206036-007	LC34-DPT0349-047.0-20120910
R1206036-008	LC34-DPT0351-045.5-20120911
R1206036-009	LC34-DPT0351-047.0-20120911
R1206036-010	LC34-DPT0351-048.5-20120911
R1206036-011	LC34-DPT0351-053.0-20120910
R1206036-012	LC34-DPT0349-037.0-20120910
R1206036-013	LC34-DPT0349-040.0-20120910
R1206036-014	LC34-DPT0349-043.5-20120910
R1206036-015	LC34-DPT0349-045.0-20120910
R1206036-016	LC34-DPT0349-046.5-20120910
R1206036-017	LC34-DPT0349-048.0-20120910
R1206036-018	LC34-DPT0349-053.0-20120910
R1206036-019	LC34-DPT0350-037.0-20120910
R1206036-020	LC34-DPT0350-040.0-20120910
R1206036-021	LC34-DPT0350-044.0-20120910
R1206036-022	LC34-DPT0350-045.5-20120910

Florida DEP Data Qualifiers

B	Results based upon colony counts outside the acceptable range.
D	Measurement was made in the field.
H	Value based on field kit determination; results may not be accurate.
i	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value (one of the following reasons is discussed in the project case narrative). 1. The result may be inaccurate because the surrogate recovery limits have been exceeded. 2. No known quality control criteria exists for the component. 3. The reported value failed to meet the established quality control criteria for either precision or accuracy. 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD). 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
K	Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
L	Off scale high. The analyte is above the upper limit of the linear calibration range.
M	The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
N	Presumptive evidence of the analyte. Confirmation was not performed.
Q	Sample held beyond the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1450
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-047.0-20120910		
Lab Code:	R1206036-001	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**70.1**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1450
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-047.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-001	**Basis:**	Dry
		Percent Solids:	70.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1400	U	1400	110	200	NA	9/14/12 23:32		309582	
1,1,2,2-Tetrachloroethane	1400	U	1400	58	200	NA	9/14/12 23:32		309582	
1,1,2-Trichloroethane	1400	U	1400	120	200	NA	9/14/12 23:32		309582	
1,1-Dichloroethane (1,1-DCA)	1400	U	1400	89	200	NA	9/14/12 23:32		309582	
1,1-Dichloroethene (1,1-DCE)	1400	U	1400	160	200	NA	9/14/12 23:32		309582	
1,2-Dichloroethane	1400	U	1400	92	200	NA	9/14/12 23:32		309582	
1,2-Dichloropropane	1400	U	1400	110	200	NA	9/14/12 23:32		309582	
n-Butanol	71000	U	71000	15000	200	NA	9/14/12 23:32		309582	
2-Butanone (MEK)	1400	U	1400	440	200	NA	9/14/12 23:32		309582	
2-Hexanone	1400	U	1400	170	200	NA	9/14/12 23:32		309582	
4-Methyl-2-pentanone	1400	U	1400	150	200	NA	9/14/12 23:32		309582	
Acetone	1400	U	1400	320	200	NA	9/14/12 23:32		309582	
Benzene	1400	U	1400	78	200	NA	9/14/12 23:32		309582	
Bromodichloromethane	1400	U	1400	72	200	NA	9/14/12 23:32		309582	
Bromoform	1400	U	1400	190	200	NA	9/14/12 23:32		309582	
Bromomethane	**160**	I	1400	130	200	NA	9/14/12 23:32		309582	
Carbon Disulfide	1400	U	1400	86	200	NA	9/14/12 23:32		309582	
Carbon Tetrachloride	1400	U	1400	75	200	NA	9/14/12 23:32		309582	
Chlorobenzene	1400	U	1400	80	200	NA	9/14/12 23:32		309582	
Chloroethane	1400	U	1400	110	200	NA	9/14/12 23:32		309582	
Chloroform	1400	U	1400	130	200	NA	9/14/12 23:32		309582	
Chloromethane	1400	U	1400	140	200	NA	9/14/12 23:32		309582	
Dibromochloromethane	1400	U	1400	66	200	NA	9/14/12 23:32		309582	
Dichloromethane	1400	U	1400	140	200	NA	9/14/12 23:32		309582	
Ethylbenzene	1400	U	1400	89	200	NA	9/14/12 23:32		309582	
Styrene	1400	U	1400	58	200	NA	9/14/12 23:32		309582	
Tetrachloroethene (PCE)	1400	U	1400	58	200	NA	9/14/12 23:32		309582	
Toluene	1400	U	1400	98	200	NA	9/14/12 23:32		309582	
Trichloroethene (TCE)	**48000**		1400	58	200	NA	9/14/12 23:32		309582	
Vinyl Chloride	1400	U	1400	92	200	NA	9/14/12 23:32		309582	
cis-1,2-Dichloroethene	**5100**		1400	72	200	NA	9/14/12 23:32		309582	
cis-1,3-Dichloropropene	1400	U	1400	75	200	NA	9/14/12 23:32		309582	
m,p-Xylenes	2900	U	2900	160	200	NA	9/14/12 23:32		309582	
n-Butyl Acetate	1400	U	1400	66	200	NA	9/14/12 23:32		309582	
o-Xylene	1400	U	1400	83	200	NA	9/14/12 23:32		309582	
trans-1,2-Dichloroethene	1400	U	1400	110	200	NA	9/14/12 23:32		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1450
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-047.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-001	**Basis:**	Dry
		Percent Solids:	70.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	1400	U	1400	69	200	NA	9/14/12 23:32		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/14/12 23:32	
Dibromofluoromethane	103	89-119	9/14/12 23:32	
Toluene-d8	99	87-121	9/14/12 23:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1506
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-048.5-20120910		
Lab Code:	R1206036-002	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**68.4**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1506
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-048.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-002	**Basis:**	Dry
		Percent Solids:	68.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1500	U	1500	120	199	NA	9/15/12 00:05		309582	
1,1,2,2-Tetrachloroethane	1500	U	1500	59	199	NA	9/15/12 00:05		309582	
1,1,2-Trichloroethane	1500	U	1500	120	199	NA	9/15/12 00:05		309582	
1,1-Dichloroethane (1,1-DCA)	1500	U	1500	91	199	NA	9/15/12 00:05		309582	
1,1-Dichloroethene (1,1-DCE)	1500	U	1500	160	199	NA	9/15/12 00:05		309582	
1,2-Dichloroethane	1500	U	1500	94	199	NA	9/15/12 00:05		309582	
1,2-Dichloropropane	1500	U	1500	120	199	NA	9/15/12 00:05		309582	
n-Butanol	73000	U	73000	15000	199	NA	9/15/12 00:05		309582	
2-Butanone (MEK)	1500	U	1500	450	199	NA	9/15/12 00:05		309582	
2-Hexanone	1500	U	1500	170	199	NA	9/15/12 00:05		309582	
4-Methyl-2-pentanone	1500	U	1500	150	199	NA	9/15/12 00:05		309582	
Acetone	1500	U	1500	320	199	NA	9/15/12 00:05		309582	
Benzene	1500	U	1500	79	199	NA	9/15/12 00:05		309582	
Bromodichloromethane	1500	U	1500	73	199	NA	9/15/12 00:05		309582	
Bromoform	1500	U	1500	190	199	NA	9/15/12 00:05		309582	
Bromomethane	1500	U	1500	140	199	NA	9/15/12 00:05		309582	
Carbon Disulfide	1500	U	1500	88	199	NA	9/15/12 00:05		309582	
Carbon Tetrachloride	1500	U	1500	76	199	NA	9/15/12 00:05		309582	
Chlorobenzene	1500	U	1500	82	199	NA	9/15/12 00:05		309582	
Chloroethane	1500	U	1500	120	199	NA	9/15/12 00:05		309582	
Chloroform	1500	U	1500	130	199	NA	9/15/12 00:05		309582	
Chloromethane	1500	U	1500	140	199	NA	9/15/12 00:05		309582	
Dibromochloromethane	1500	U	1500	67	199	NA	9/15/12 00:05		309582	
Dichloromethane	1500	U	1500	140	199	NA	9/15/12 00:05		309582	
Ethylbenzene	1500	U	1500	91	199	NA	9/15/12 00:05		309582	
Styrene	1500	U	1500	59	199	NA	9/15/12 00:05		309582	
Tetrachloroethene (PCE)	1500	U	1500	59	199	NA	9/15/12 00:05		309582	
Toluene	1500	U	1500	99	199	NA	9/15/12 00:05		309582	
Trichloroethene (TCE)	**38000**		1500	59	199	NA	9/15/12 00:05		309582	
Vinyl Chloride	1500	U	1500	94	199	NA	9/15/12 00:05		309582	
cis-1,2-Dichloroethene	**4700**		1500	73	199	NA	9/15/12 00:05		309582	
cis-1,3-Dichloropropene	1500	U	1500	76	199	NA	9/15/12 00:05		309582	
m,p-Xylenes	2900	U	2900	160	199	NA	9/15/12 00:05		309582	
n-Butyl Acetate	1500	U	1500	67	199	NA	9/15/12 00:05		309582	
o-Xylene	1500	U	1500	85	199	NA	9/15/12 00:05		309582	
trans-1,2-Dichloroethene	1500	U	1500	120	199	NA	9/15/12 00:05		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1506
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-048.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-002	**Basis:**	Dry
		Percent Solids:	68.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	1500	U	1500	70	199	NA	9/15/12 00:05		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/15/12 00:05	
Dibromofluoromethane	101	89-119	9/15/12 00:05	
Toluene-d8	99	87-121	9/15/12 00:05	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1643
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-053.0-20120910		
Lab Code:	R1206036-003	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**69.8**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1643
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-053.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-003	**Basis:**	Dry
		Percent Solids:	69.8

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.5	U	5.5	0.81	.77	NA	9/20/12 19:13		310427	
1,1,2,2-Tetrachloroethane	5.5	U	5.5	0.90	.77	NA	9/20/12 19:13		310427	
1,1,2-Trichloroethane	5.5	U	5.5	0.81	.77	NA	9/20/12 19:13		310427	
1,1-Dichloroethane (1,1-DCA)	5.5	U	5.5	1.4	.77	NA	9/20/12 19:13		310427	
1,1-Dichloroethene (1,1-DCE)	5.5	U	5.5	1.5	.77	NA	9/20/12 19:13		310427	
1,2-Dichloroethane	5.5	U	5.5	0.68	.77	NA	9/20/12 19:13		310427	
1,2-Dichloropropane	5.5	U	5.5	1.1	.77	NA	9/20/12 19:13		310427	
n-Butanol	280	U	280	58	.77	NA	9/20/12 19:13		310427	
2-Butanone (MEK)	**3.0**	I	5.5	2.6	.77	NA	9/20/12 19:13		310427	
2-Hexanone	5.5	U	5.5	1.4	.77	NA	9/20/12 19:13		310427	
4-Methyl-2-pentanone	5.5	U	5.5	1.1	.77	NA	9/20/12 19:13		310427	
Acetone	**27**		5.5	3.1	.77	NA	9/20/12 19:13		310427	
Benzene	5.5	U	5.5	0.32	.77	NA	9/20/12 19:13		310427	
Bromodichloromethane	5.5	U	5.5	0.68	.77	NA	9/20/12 19:13		310427	
Bromoform	5.5	U	5.5	1.1	.77	NA	9/20/12 19:13		310427	
Bromomethane	5.5	U	5.5	1.6	.77	NA	9/20/12 19:13		310427	
Carbon Disulfide	**21**		5.5	1.4	.77	NA	9/20/12 19:13		310427	
Carbon Tetrachloride	5.5	U	5.5	1.1	.77	NA	9/20/12 19:13		310427	
Chlorobenzene	5.5	U	5.5	0.32	.77	NA	9/20/12 19:13		310427	
Chloroethane	5.5	U	5.5	3.2	.77	NA	9/20/12 19:13		310427	
Chloroform	5.5	U	5.5	1.4	.77	NA	9/20/12 19:13		310427	
Chloromethane	5.5	U	5.5	0.45	.77	NA	9/20/12 19:13		310427	
Dibromochloromethane	5.5	U	5.5	0.81	.77	NA	9/20/12 19:13		310427	
Dichloromethane	5.5	U	5.5	0.63	.77	NA	9/20/12 19:13		310427	
Ethylbenzene	5.5	U	5.5	0.26	.77	NA	9/20/12 19:13		310427	
Styrene	5.5	U	5.5	0.34	.77	NA	9/20/12 19:13		310427	
Tetrachloroethene (PCE)	5.5	U	5.5	0.98	.77	NA	9/20/12 19:13		310427	
Toluene	**0.96**	I	5.5	0.74	.77	NA	9/20/12 19:13		310427	
Trichloroethene (TCE)	**4.9**	I	5.5	1.2	.77	NA	9/20/12 19:13		310427	
Vinyl Chloride	**11**		5.5	2.1	.77	NA	9/20/12 19:13		310427	
cis-1,2-Dichloroethene	**7.2**		5.5	1.1	.77	NA	9/20/12 19:13		310427	
cis-1,3-Dichloropropene	5.5	U	5.5	1.0	.77	NA	9/20/12 19:13		310427	
m,p-Xylenes	11	U	11	1.3	.77	NA	9/20/12 19:13		310427	
n-Butyl Acetate	5.5	U	5.5	0.91	.77	NA	9/20/12 19:13		310427	
o-Xylene	5.5	U	5.5	0.53	.77	NA	9/20/12 19:13		310427	
trans-1,2-Dichloroethene	5.5	U	5.5	0.95	.77	NA	9/20/12 19:13		310427	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1643
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-053.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-003	**Basis:**	Dry
		Percent Solids:	69.8

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	5.5	U	5.5	0.23	.77	NA	9/20/12 19:13		310427	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	28-150	9/20/12 19:13	
Dibromofluoromethane	99	63-138	9/20/12 19:13	
Toluene-d8	99	66-138	9/20/12 19:13	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1721
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-034.5-20120910		
Lab Code:	R1206036-004	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**84.3**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1721
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-034.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-004	**Basis:**	Dry
		Percent Solids:	84.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	520	U	520	40	87	NA	9/14/12 21:21		309582	
1,1,2,2-Tetrachloroethane	520	U	520	21	87	NA	9/14/12 21:21		309582	
1,1,2-Trichloroethane	520	U	520	43	87	NA	9/14/12 21:21		309582	
1,1-Dichloroethane (1,1-DCA)	520	U	520	32	87	NA	9/14/12 21:21		309582	
1,1-Dichloroethene (1,1-DCE)	520	U	520	55	87	NA	9/14/12 21:21		309582	
1,2-Dichloroethane	520	U	520	34	87	NA	9/14/12 21:21		309582	
1,2-Dichloropropane	520	U	520	40	87	NA	9/14/12 21:21		309582	
n-Butanol	26000	U	26000	5200	87	NA	9/14/12 21:21		309582	
2-Butanone (MEK)	520	U	520	160	87	NA	9/14/12 21:21		309582	
2-Hexanone	520	U	520	60	87	NA	9/14/12 21:21		309582	
4-Methyl-2-pentanone	520	U	520	52	87	NA	9/14/12 21:21		309582	
Acetone	520	U	520	120	87	NA	9/14/12 21:21		309582	
Benzene	520	U	520	28	87	NA	9/14/12 21:21		309582	
Bromodichloromethane	520	U	520	26	87	NA	9/14/12 21:21		309582	
Bromoform	520	U	520	68	87	NA	9/14/12 21:21		309582	
Bromomethane	72	I	520	47	87	NA	9/14/12 21:21		309582	
Carbon Disulfide	520	U	520	31	87	NA	9/14/12 21:21		309582	
Carbon Tetrachloride	520	U	520	27	87	NA	9/14/12 21:21		309582	
Chlorobenzene	520	U	520	29	87	NA	9/14/12 21:21		309582	
Chloroethane	520	U	520	40	87	NA	9/14/12 21:21		309582	
Chloroform	520	U	520	45	87	NA	9/14/12 21:21		309582	
Chloromethane	520	U	520	48	87	NA	9/14/12 21:21		309582	
Dibromochloromethane	520	U	520	24	87	NA	9/14/12 21:21		309582	
Dichloromethane	520	U	520	48	87	NA	9/14/12 21:21		309582	
Ethylbenzene	520	U	520	32	87	NA	9/14/12 21:21		309582	
Styrene	520	U	520	21	87	NA	9/14/12 21:21		309582	
Tetrachloroethene (PCE)	520	U	520	21	87	NA	9/14/12 21:21		309582	
Toluene	520	U	520	36	87	NA	9/14/12 21:21		309582	
Trichloroethene (TCE)	520	U	520	21	87	NA	9/14/12 21:21		309582	
Vinyl Chloride	50	I	520	34	87	NA	9/14/12 21:21		309582	
cis-1,2-Dichloroethene	850		520	26	87	NA	9/14/12 21:21		309582	
cis-1,3-Dichloropropene	520	U	520	27	87	NA	9/14/12 21:21		309582	
m,p-Xylenes	1000	U	1000	56	87	NA	9/14/12 21:21		309582	
n-Butyl Acetate	520	U	520	24	87	NA	9/14/12 21:21		309582	
o-Xylene	520	U	520	30	87	NA	9/14/12 21:21		309582	
trans-1,2-Dichloroethene	520	U	520	40	87	NA	9/14/12 21:21		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1721
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-034.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-004	**Basis:**	Dry
		Percent Solids:	84.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	520	U	520	25	87	NA	9/14/12 21:21		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/14/12 21:21	
Dibromofluoromethane	101	89-119	9/14/12 21:21	
Toluene-d8	97	87-121	9/14/12 21:21	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1734
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-037.0-20120910		
Lab Code:	R1206036-005	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**83.6**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1734
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-037.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-005	**Basis:**	Dry
		Percent Solids:	83.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	4.1	U	4.1	0.60	.68	NA	9/20/12 19:51		310427	
1,1,2,2-Tetrachloroethane	4.1	U	4.1	0.66	.68	NA	9/20/12 19:51		310427	
1,1,2-Trichloroethane	4.1	U	4.1	0.60	.68	NA	9/20/12 19:51		310427	
1,1-Dichloroethane (1,1-DCA)	4.1	U	4.1	1.1	.68	NA	9/20/12 19:51		310427	
1,1-Dichloroethene (1,1-DCE)	4.1	U	4.1	1.1	.68	NA	9/20/12 19:51		310427	
1,2-Dichloroethane	4.1	U	4.1	0.50	.68	NA	9/20/12 19:51		310427	
1,2-Dichloropropane	4.1	U	4.1	0.79	.68	NA	9/20/12 19:51		310427	
n-Butanol	200	U	200	43	.68	NA	9/20/12 19:51		310427	
2-Butanone (MEK)	**4.4**		4.1	1.9	.68	NA	9/20/12 19:51		310427	
2-Hexanone	4.1	U	4.1	0.99	.68	NA	9/20/12 19:51		310427	
4-Methyl-2-pentanone	4.1	U	4.1	0.80	.68	NA	9/20/12 19:51		310427	
Acetone	**20**		4.1	2.3	.68	NA	9/20/12 19:51		310427	
Benzene	4.1	U	4.1	0.24	.68	NA	9/20/12 19:51		310427	
Bromodichloromethane	4.1	U	4.1	0.50	.68	NA	9/20/12 19:51		310427	
Bromoform	4.1	U	4.1	0.76	.68	NA	9/20/12 19:51		310427	
Bromomethane	4.1	U	4.1	1.2	.68	NA	9/20/12 19:51		310427	
Carbon Disulfide	**26**		4.1	1.1	.68	NA	9/20/12 19:51		310427	
Carbon Tetrachloride	4.1	U	4.1	0.75	.68	NA	9/20/12 19:51		310427	
Chlorobenzene	4.1	U	4.1	0.24	.68	NA	9/20/12 19:51		310427	
Chloroethane	4.1	U	4.1	2.4	.68	NA	9/20/12 19:51		310427	
Chloroform	4.1	U	4.1	1.1	.68	NA	9/20/12 19:51		310427	
Chloromethane	4.1	U	4.1	0.33	.68	NA	9/20/12 19:51		310427	
Dibromochloromethane	4.1	U	4.1	0.60	.68	NA	9/20/12 19:51		310427	
Dichloromethane	4.1	U	4.1	0.47	.68	NA	9/20/12 19:51		310427	
Ethylbenzene	4.1	U	4.1	0.19	.68	NA	9/20/12 19:51		310427	
Styrene	4.1	U	4.1	0.25	.68	NA	9/20/12 19:51		310427	
Tetrachloroethene (PCE)	4.1	U	4.1	0.72	.68	NA	9/20/12 19:51		310427	
Toluene	**0.60**	I	4.1	0.55	.68	NA	9/20/12 19:51		310427	
Trichloroethene (TCE)	**5.7**		4.1	0.83	.68	NA	9/20/12 19:51		310427	
Vinyl Chloride	**650**		540	35	91	NA	9/21/12 13:31		310599	
cis-1,2-Dichloroethene	**30**		4.1	0.78	.68	NA	9/20/12 19:51		310427	
cis-1,3-Dichloropropene	4.1	U	4.1	0.74	.68	NA	9/20/12 19:51		310427	
m,p-Xylenes	8.1	U	8.1	0.89	.68	NA	9/20/12 19:51		310427	
n-Butyl Acetate	4.1	U	4.1	0.67	.68	NA	9/20/12 19:51		310427	
o-Xylene	4.1	U	4.1	0.40	.68	NA	9/20/12 19:51		310427	
trans-1,2-Dichloroethene	**30**		4.1	0.70	.68	NA	9/20/12 19:51		310427	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1734
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-037.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-005	**Basis:**	Dry
		Percent Solids:	83.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	4.1	U	4.1	0.17	.68	NA	9/20/12 19:51		310427	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/20/12 19:51	
Dibromofluoromethane	100	89-119	9/20/12 19:51	
Toluene-d8	97	87-121	9/20/12 19:51	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1739
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-040.0-20120910		
Lab Code:	R1206036-006	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**82.3**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1739
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-040.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-006	**Basis:**	Dry
		Percent Solids:	82.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.2	U	5.2	0.76	.85	NA	9/20/12 18:35		310427	
1,1,2,2-Tetrachloroethane	5.2	U	5.2	0.84	.85	NA	9/20/12 18:35		310427	
1,1,2-Trichloroethane	5.2	U	5.2	0.76	.85	NA	9/20/12 18:35		310427	
1,1-Dichloroethane (1,1-DCA)	5.2	U	5.2	1.3	.85	NA	9/20/12 18:35		310427	
1,1-Dichloroethene (1,1-DCE)	5.2	U	5.2	1.4	.85	NA	9/20/12 18:35		310427	
1,2-Dichloroethane	5.2	U	5.2	0.64	.85	NA	9/20/12 18:35		310427	
1,2-Dichloropropane	5.2	U	5.2	1.1	.85	NA	9/20/12 18:35		310427	
n-Butanol	260	U	260	54	.85	NA	9/20/12 18:35		310427	
2-Butanone (MEK)	**6.9**		5.2	2.4	.85	NA	9/20/12 18:35		310427	
2-Hexanone	5.2	U	5.2	1.3	.85	NA	9/20/12 18:35		310427	
4-Methyl-2-pentanone	5.2	U	5.2	1.1	.85	NA	9/20/12 18:35		310427	
Acetone	**31**		5.2	3.0	.85	NA	9/20/12 18:35		310427	
Benzene	5.2	U	5.2	0.30	.85	NA	9/20/12 18:35		310427	
Bromodichloromethane	5.2	U	5.2	0.64	.85	NA	9/20/12 18:35		310427	
Bromoform	5.2	U	5.2	0.97	.85	NA	9/20/12 18:35		310427	
Bromomethane	5.2	U	5.2	1.5	.85	NA	9/20/12 18:35		310427	
Carbon Disulfide	**44**		5.2	1.3	.85	NA	9/20/12 18:35		310427	
Carbon Tetrachloride	5.2	U	5.2	0.96	.85	NA	9/20/12 18:35		310427	
Chlorobenzene	5.2	U	5.2	0.30	.85	NA	9/20/12 18:35		310427	
Chloroethane	5.2	U	5.2	3.0	.85	NA	9/20/12 18:35		310427	
Chloroform	5.2	U	5.2	1.4	.85	NA	9/20/12 18:35		310427	
Chloromethane	5.2	U	5.2	0.42	.85	NA	9/20/12 18:35		310427	
Dibromochloromethane	5.2	U	5.2	0.76	.85	NA	9/20/12 18:35		310427	
Dichloromethane	5.2	U	5.2	0.59	.85	NA	9/20/12 18:35		310427	
Ethylbenzene	5.2	U	5.2	0.24	.85	NA	9/20/12 18:35		310427	
Styrene	5.2	U	5.2	0.31	.85	NA	9/20/12 18:35		310427	
Tetrachloroethene (PCE)	5.2	U	5.2	0.91	.85	NA	9/20/12 18:35		310427	
Toluene	**1.5**	I	5.2	0.70	.85	NA	9/20/12 18:35		310427	
Trichloroethene (TCE)	**5.4**		5.2	1.1	.85	NA	9/20/12 18:35		310427	
Vinyl Chloride	**33**		5.2	2.0	.85	NA	9/20/12 18:35		310427	
cis-1,2-Dichloroethene	**100**		5.2	0.99	.85	NA	9/20/12 18:35		310427	
cis-1,3-Dichloropropene	5.2	U	5.2	0.93	.85	NA	9/20/12 18:35		310427	
m,p-Xylenes	10	U	10	1.2	.85	NA	9/20/12 18:35		310427	
n-Butyl Acetate	5.2	U	5.2	0.85	.85	NA	9/20/12 18:35		310427	
o-Xylene	5.2	U	5.2	0.50	.85	NA	9/20/12 18:35		310427	
trans-1,2-Dichloroethene	**43**		5.2	0.89	.85	NA	9/20/12 18:35		310427	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1739
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-040.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-006	**Basis:**	Dry
		Percent Solids:	82.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	5.2	U	5.2	0.21	.85	NA	9/20/12 18:35		310427	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	28-150	9/20/12 18:35	
Dibromofluoromethane	99	63-138	9/20/12 18:35	
Toluene-d8	99	66-138	9/20/12 18:35	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1809
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-047.0-20120910		
Lab Code:	R1206036-007	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**70.8**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1809
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-047.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-007	**Basis:**	Dry
		Percent Solids:	70.8

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	610	U	610	47	86.5	NA	9/14/12 21:54		309582	
1,1,2,2-Tetrachloroethane	610	U	610	25	86.5	NA	9/14/12 21:54		309582	
1,1,2-Trichloroethane	610	U	610	51	86.5	NA	9/14/12 21:54		309582	
1,1-Dichloroethane (1,1-DCA)	610	U	610	38	86.5	NA	9/14/12 21:54		309582	
1,1-Dichloroethene (1,1-DCE)	610	U	610	65	86.5	NA	9/14/12 21:54		309582	
1,2-Dichloroethane	610	U	610	40	86.5	NA	9/14/12 21:54		309582	
1,2-Dichloropropane	610	U	610	47	86.5	NA	9/14/12 21:54		309582	
n-Butanol	31000	U	31000	6200	86.5	NA	9/14/12 21:54		309582	
2-Butanone (MEK)	610	U	610	190	86.5	NA	9/14/12 21:54		309582	
2-Hexanone	610	U	610	71	86.5	NA	9/14/12 21:54		309582	
4-Methyl-2-pentanone	610	U	610	62	86.5	NA	9/14/12 21:54		309582	
Acetone	610	U	610	140	86.5	NA	9/14/12 21:54		309582	
Benzene	610	U	610	33	86.5	NA	9/14/12 21:54		309582	
Bromodichloromethane	610	U	610	31	86.5	NA	9/14/12 21:54		309582	
Bromoform	610	U	610	80	86.5	NA	9/14/12 21:54		309582	
Bromomethane	**89**	I	610	55	86.5	NA	9/14/12 21:54		309582	
Carbon Disulfide	**53**	I	610	37	86.5	NA	9/14/12 21:54		309582	
Carbon Tetrachloride	610	U	610	32	86.5	NA	9/14/12 21:54		309582	
Chlorobenzene	610	U	610	35	86.5	NA	9/14/12 21:54		309582	
Chloroethane	610	U	610	47	86.5	NA	9/14/12 21:54		309582	
Chloroform	610	U	610	53	86.5	NA	9/14/12 21:54		309582	
Chloromethane	610	U	610	57	86.5	NA	9/14/12 21:54		309582	
Dibromochloromethane	610	U	610	29	86.5	NA	9/14/12 21:54		309582	
Dichloromethane	610	U	610	57	86.5	NA	9/14/12 21:54		309582	
Ethylbenzene	610	U	610	38	86.5	NA	9/14/12 21:54		309582	
Styrene	610	U	610	25	86.5	NA	9/14/12 21:54		309582	
Tetrachloroethene (PCE)	610	U	610	25	86.5	NA	9/14/12 21:54		309582	
Toluene	610	U	610	42	86.5	NA	9/14/12 21:54		309582	
Trichloroethene (TCE)	**10000**		610	25	86.5	NA	9/14/12 21:54		309582	
Vinyl Chloride	**170**	I	610	40	86.5	NA	9/14/12 21:54		309582	
cis-1,2-Dichloroethene	**14000**		610	31	86.5	NA	9/14/12 21:54		309582	
cis-1,3-Dichloropropene	610	U	610	32	86.5	NA	9/14/12 21:54		309582	
m,p-Xylenes	1200	U	1200	66	86.5	NA	9/14/12 21:54		309582	
n-Butyl Acetate	610	U	610	29	86.5	NA	9/14/12 21:54		309582	
o-Xylene	610	U	610	36	86.5	NA	9/14/12 21:54		309582	
trans-1,2-Dichloroethene	**61**	I	610	47	86.5	NA	9/14/12 21:54		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1809
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-047.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-007	**Basis:**	Dry
		Percent Solids:	70.8

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	610	U	610	30	86.5	NA	9/14/12 21:54		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	9/14/12 21:54	
Dibromofluoromethane	103	89-119	9/14/12 21:54	
Toluene-d8	99	87-121	9/14/12 21:54	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0913
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-045.5-20120911		
Lab Code:	R1206036-008	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.3**		Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0913
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-045.5-20120911	**Units:**	µg/Kg
Lab Code:	R1206036-008	**Basis:**	Dry
		Percent Solids:	72.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	640	U	640	49	92	NA	9/19/12 08:22		309793	
1,1,2,2-Tetrachloroethane	640	U	640	26	92	NA	9/19/12 08:22		309793	
1,1,2-Trichloroethane	640	U	640	53	92	NA	9/19/12 08:22		309793	
1,1-Dichloroethane (1,1-DCA)	640	U	640	40	92	NA	9/19/12 08:22		309793	
1,1-Dichloroethene (1,1-DCE)	640	U	640	68	92	NA	9/19/12 08:22		309793	
1,2-Dichloroethane	640	U	640	41	92	NA	9/19/12 08:22		309793	
1,2-Dichloropropane	640	U	640	49	92	NA	9/19/12 08:22		309793	
n-Butanol	32000	U	32000	6400	92	NA	9/19/12 08:22		309793	
2-Butanone (MEK)	640	U	640	200	92	NA	9/19/12 08:22		309793	
2-Hexanone	640	U	640	74	92	NA	9/19/12 08:22		309793	
4-Methyl-2-pentanone	640	U	640	64	92	NA	9/19/12 08:22		309793	
Acetone	640	U	640	140	92	NA	9/19/12 08:22		309793	
Benzene	640	U	640	35	92	NA	9/19/12 08:22		309793	
Bromodichloromethane	640	U	640	32	92	NA	9/19/12 08:22		309793	
Bromoform	640	U	640	83	92	NA	9/19/12 08:22		309793	
Bromomethane	**89**	IV	640	58	92	NA	9/19/12 08:22		309793	
Carbon Disulfide	**55**	I	640	39	92	NA	9/19/12 08:22		309793	
Carbon Tetrachloride	640	U	640	34	92	NA	9/19/12 08:22		309793	
Chlorobenzene	640	U	640	36	92	NA	9/19/12 08:22		309793	
Chloroethane	640	U	640	49	92	NA	9/19/12 08:22		309793	
Chloroform	640	U	640	55	92	NA	9/19/12 08:22		309793	
Chloromethane	640	U	640	59	92	NA	9/19/12 08:22		309793	
Dibromochloromethane	640	U	640	30	92	NA	9/19/12 08:22		309793	
Dichloromethane	640	U	640	59	92	NA	9/19/12 08:22		309793	
Ethylbenzene	640	U	640	40	92	NA	9/19/12 08:22		309793	
Styrene	640	U	640	26	92	NA	9/19/12 08:22		309793	
Tetrachloroethene (PCE)	640	U	640	26	92	NA	9/19/12 08:22		309793	
Toluene	640	U	640	44	92	NA	9/19/12 08:22		309793	
Trichloroethene (TCE)	**6400**		640	26	92	NA	9/19/12 08:22		309793	
Vinyl Chloride	**1200**		640	41	92	NA	9/19/12 08:22		309793	
cis-1,2-Dichloroethene	**8900**		640	32	92	NA	9/19/12 08:22		309793	
cis-1,3-Dichloropropene	640	U	640	34	92	NA	9/19/12 08:22		309793	
m,p-Xylenes	1300	U	1300	69	92	NA	9/19/12 08:22		309793	
n-Butyl Acetate	640	U	640	30	92	NA	9/19/12 08:22		309793	
o-Xylene	640	U	640	37	92	NA	9/19/12 08:22		309793	
trans-1,2-Dichloroethene	**61**	I	640	49	92	NA	9/19/12 08:22		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0913
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-045.5-20120911	**Units:**	µg/Kg
Lab Code:	R1206036-008	**Basis:**	Dry
		Percent Solids:	72.3

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	640	U	640	31	92	NA	9/19/12 08:22		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/19/12 08:22	
Dibromofluoromethane	102	89-119	9/19/12 08:22	
Toluene-d8	99	87-121	9/19/12 08:22	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0919
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-047.0-20120911		
Lab Code:	R1206036-009	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.0**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0919
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-047.0-20120911	**Units:**	µg/Kg
Lab Code:	R1206036-009	**Basis:**	Dry
		Percent Solids:	73.0

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	80	153	NA	9/15/12 01:11		309582	
1,1,2,2-Tetrachloroethane	1000	U	1000	42	153	NA	9/15/12 01:11		309582	
1,1,2-Trichloroethane	1000	U	1000	86	153	NA	9/15/12 01:11		309582	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	65	153	NA	9/15/12 01:11		309582	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	120	153	NA	9/15/12 01:11		309582	
1,2-Dichloroethane	1000	U	1000	68	153	NA	9/15/12 01:11		309582	
1,2-Dichloropropane	1000	U	1000	80	153	NA	9/15/12 01:11		309582	
n-Butanol	52000	U	52000	11000	153	NA	9/15/12 01:11		309582	
2-Butanone (MEK)	1000	U	1000	330	153	NA	9/15/12 01:11		309582	
2-Hexanone	1000	U	1000	130	153	NA	9/15/12 01:11		309582	
4-Methyl-2-pentanone	1000	U	1000	110	153	NA	9/15/12 01:11		309582	
Acetone	1000	U	1000	230	153	NA	9/15/12 01:11		309582	
Benzene	1000	U	1000	57	153	NA	9/15/12 01:11		309582	
Bromodichloromethane	1000	U	1000	53	153	NA	9/15/12 01:11		309582	
Bromoform	1000	U	1000	140	153	NA	9/15/12 01:11		309582	
Bromomethane	**110**	I	1000	95	153	NA	9/15/12 01:11		309582	
Carbon Disulfide	1000	U	1000	63	153	NA	9/15/12 01:11		309582	
Carbon Tetrachloride	1000	U	1000	55	153	NA	9/15/12 01:11		309582	
Chlorobenzene	1000	U	1000	59	153	NA	9/15/12 01:11		309582	
Chloroethane	1000	U	1000	80	153	NA	9/15/12 01:11		309582	
Chloroform	1000	U	1000	91	153	NA	9/15/12 01:11		309582	
Chloromethane	1000	U	1000	97	153	NA	9/15/12 01:11		309582	
Dibromochloromethane	1000	U	1000	49	153	NA	9/15/12 01:11		309582	
Dichloromethane	1000	U	1000	97	153	NA	9/15/12 01:11		309582	
Ethylbenzene	1000	U	1000	65	153	NA	9/15/12 01:11		309582	
Styrene	1000	U	1000	42	153	NA	9/15/12 01:11		309582	
Tetrachloroethene (PCE)	1000	U	1000	42	153	NA	9/15/12 01:11		309582	
Toluene	1000	U	1000	72	153	NA	9/15/12 01:11		309582	
Trichloroethene (TCE)	**120**	I	1000	42	153	NA	9/15/12 01:11		309582	
Vinyl Chloride	**610**	I	1000	68	153	NA	9/15/12 01:11		309582	
cis-1,2-Dichloroethene	**21000**		1000	53	153	NA	9/15/12 01:11		309582	
cis-1,3-Dichloropropene	1000	U	1000	55	153	NA	9/15/12 01:11		309582	
m,p-Xylenes	2100	U	2100	120	153	NA	9/15/12 01:11		309582	
n-Butyl Acetate	1000	U	1000	49	153	NA	9/15/12 01:11		309582	
o-Xylene	1000	U	1000	61	153	NA	9/15/12 01:11		309582	
trans-1,2-Dichloroethene	**94**	I	1000	80	153	NA	9/15/12 01:11		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0919
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-047.0-20120911	**Units:**	µg/Kg
Lab Code:	R1206036-009	**Basis:**	Dry
		Percent Solids:	73.0

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	1000	U	1000	51	153	NA	9/15/12 01:11		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	9/15/12 01:11	
Dibromofluoromethane	100	89-119	9/15/12 01:11	
Toluene-d8	97	87-121	9/15/12 01:11	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0929
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-048.5-20120911		
Lab Code:	R1206036-010	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.6**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0929
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-048.5-20120911	**Units:**	µg/Kg
Lab Code:	R1206036-010	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	850	U	850	65	124	NA	9/15/12 01:44		309582	
1,1,2,2-Tetrachloroethane	850	U	850	35	124	NA	9/15/12 01:44		309582	
1,1,2-Trichloroethane	850	U	850	71	124	NA	9/15/12 01:44		309582	
1,1-Dichloroethane (1,1-DCA)	850	U	850	53	124	NA	9/15/12 01:44		309582	
1,1-Dichloroethene (1,1-DCE)	850	U	850	91	124	NA	9/15/12 01:44		309582	
1,2-Dichloroethane	850	U	850	55	124	NA	9/15/12 01:44		309582	
1,2-Dichloropropane	850	U	850	65	124	NA	9/15/12 01:44		309582	
n-Butanol	43000	U	43000	8600	124	NA	9/15/12 01:44		309582	
2-Butanone (MEK)	850	U	850	270	124	NA	9/15/12 01:44		309582	
2-Hexanone	850	U	850	100	124	NA	9/15/12 01:44		309582	
4-Methyl-2-pentanone	850	U	850	86	124	NA	9/15/12 01:44		309582	
Acetone	850	U	850	190	124	NA	9/15/12 01:44		309582	
Benzene	850	U	850	47	124	NA	9/15/12 01:44		309582	
Bromodichloromethane	850	U	850	43	124	NA	9/15/12 01:44		309582	
Bromoform	850	U	850	120	124	NA	9/15/12 01:44		309582	
Bromomethane	850	U	850	77	124	NA	9/15/12 01:44		309582	
Carbon Disulfide	850	U	850	52	124	NA	9/15/12 01:44		309582	
Carbon Tetrachloride	850	U	850	45	124	NA	9/15/12 01:44		309582	
Chlorobenzene	850	U	850	48	124	NA	9/15/12 01:44		309582	
Chloroethane	850	U	850	65	124	NA	9/15/12 01:44		309582	
Chloroform	850	U	850	74	124	NA	9/15/12 01:44		309582	
Chloromethane	850	U	850	79	124	NA	9/15/12 01:44		309582	
Dibromochloromethane	850	U	850	40	124	NA	9/15/12 01:44		309582	
Dichloromethane	850	U	850	79	124	NA	9/15/12 01:44		309582	
Ethylbenzene	850	U	850	53	124	NA	9/15/12 01:44		309582	
Styrene	850	U	850	35	124	NA	9/15/12 01:44		309582	
Tetrachloroethene (PCE)	850	U	850	35	124	NA	9/15/12 01:44		309582	
Toluene	850	U	850	59	124	NA	9/15/12 01:44		309582	
Trichloroethene (TCE)	**130**	I	850	35	124	NA	9/15/12 01:44		309582	
Vinyl Chloride	**1300**		850	55	124	NA	9/15/12 01:44		309582	
cis-1,2-Dichloroethene	**17000**		850	43	124	NA	9/15/12 01:44		309582	
cis-1,3-Dichloropropene	850	U	850	45	124	NA	9/15/12 01:44		309582	
m,p-Xylenes	1700	U	1700	93	124	NA	9/15/12 01:44		309582	
n-Butyl Acetate	850	U	850	40	124	NA	9/15/12 01:44		309582	
o-Xylene	850	U	850	50	124	NA	9/15/12 01:44		309582	
trans-1,2-Dichloroethene	79	I	850	65	124	NA	9/15/12 01:44		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0929
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-048.5-20120911	**Units:**	µg/Kg
Lab Code:	R1206036-010	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	850	U	850	41	124	NA	9/15/12 01:44		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/15/12 01:44	
Dibromofluoromethane	101	89-119	9/15/12 01:44	
Toluene-d8	99	87-121	9/15/12 01:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0938
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-053.0-20120910		
Lab Code:	R1206036-011	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**85.6**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0938
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-053.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-011	**Basis:**	Dry
		Percent Solids:	85.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	4.4	U	4.4	0.65	.76	NA	9/20/12 21:05		310427	
1,1,2,2-Tetrachloroethane	4.4	U	4.4	0.72	.76	NA	9/20/12 21:05		310427	
1,1,2-Trichloroethane	4.4	U	4.4	0.65	.76	NA	9/20/12 21:05		310427	
1,1-Dichloroethane (1,1-DCA)	4.4	U	4.4	1.2	.76	NA	9/20/12 21:05		310427	
1,1-Dichloroethene (1,1-DCE)	4.4	U	4.4	1.2	.76	NA	9/20/12 21:05		310427	
1,2-Dichloroethane	4.4	U	4.4	0.55	.76	NA	9/20/12 21:05		310427	
1,2-Dichloropropane	4.4	U	4.4	0.87	.76	NA	9/20/12 21:05		310427	
n-Butanol	220	U	220	47	.76	NA	9/20/12 21:05		310427	
2-Butanone (MEK)	4.4	U	4.4	2.1	.76	NA	9/20/12 21:05		310427	
2-Hexanone	4.4	U	4.4	1.1	.76	NA	9/20/12 21:05		310427	
4-Methyl-2-pentanone	4.4	U	4.4	0.88	.76	NA	9/20/12 21:05		310427	
Acetone	4.4	U	4.4	2.5	.76	NA	9/20/12 21:05		310427	
Benzene	4.4	U	4.4	0.26	.76	NA	9/20/12 21:05		310427	
Bromodichloromethane	4.4	U	4.4	0.55	.76	NA	9/20/12 21:05		310427	
Bromoform	4.4	U	4.4	0.83	.76	NA	9/20/12 21:05		310427	
Bromomethane	4.4	U	4.4	1.3	.76	NA	9/20/12 21:05		310427	
Carbon Disulfide	**8.4**		4.4	1.2	.76	NA	9/20/12 21:05		310427	
Carbon Tetrachloride	4.4	U	4.4	0.82	.76	NA	9/20/12 21:05		310427	
Chlorobenzene	4.4	U	4.4	0.26	.76	NA	9/20/12 21:05		310427	
Chloroethane	4.4	U	4.4	2.6	.76	NA	9/20/12 21:05		310427	
Chloroform	4.4	U	4.4	1.2	.76	NA	9/20/12 21:05		310427	
Chloromethane	4.4	U	4.4	0.36	.76	NA	9/20/12 21:05		310427	
Dibromochloromethane	4.4	U	4.4	0.65	.76	NA	9/20/12 21:05		310427	
Dichloromethane	4.4	U	4.4	0.51	.76	NA	9/20/12 21:05		310427	
Ethylbenzene	4.4	U	4.4	0.21	.76	NA	9/20/12 21:05		310427	
Styrene	4.4	U	4.4	0.27	.76	NA	9/20/12 21:05		310427	
Tetrachloroethene (PCE)	4.4	U	4.4	0.79	.76	NA	9/20/12 21:05		310427	
Toluene	**0.75**	I	4.4	0.60	.76	NA	9/20/12 21:05		310427	
Trichloroethene (TCE)	4.4	U	4.4	0.90	.76	NA	9/20/12 21:05		310427	
Vinyl Chloride	**2.7**	I	4.4	1.7	.76	NA	9/20/12 21:05		310427	
cis-1,2-Dichloroethene	**1.5**	I	4.4	0.85	.76	NA	9/20/12 21:05		310427	
cis-1,3-Dichloropropene	4.4	U	4.4	0.80	.76	NA	9/20/12 21:05		310427	
m,p-Xylenes	8.9	U	8.9	0.97	.76	NA	9/20/12 21:05		310427	
n-Butyl Acetate	**0.78**	I	4.4	0.73	.76	NA	9/20/12 21:05		310427	
o-Xylene	4.4	U	4.4	0.43	.76	NA	9/20/12 21:05		310427	
trans-1,2-Dichloroethene	4.4	U	4.4	0.77	.76	NA	9/20/12 21:05		310427	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/11/12 0938
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0351-053.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-011	**Basis:**	Dry
		Percent Solids:	85.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	4.4	U	4.4	0.18	.76	NA	9/20/12 21:05		310427	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	28-150	9/20/12 21:05	
Dibromofluoromethane	101	63-138	9/20/12 21:05	
Toluene-d8	100	66-138	9/20/12 21:05	

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Collected: 9/10/12 1044
Date Received: 9/12/12

Sample Name: LC34-DPT0349-037.0-20120910
Lab Code: R1206036-012

Basis: As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**82.4**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1044
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-037.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-012	**Basis:**	Dry
		Percent Solids:	82.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1000	U	1000	77	166.5	NA	9/20/12 17:07		310398	
1,1,2,2-Tetrachloroethane	1000	U	1000	41	166.5	NA	9/20/12 17:07		310398	
1,1,2-Trichloroethane	1000	U	1000	83	166.5	NA	9/20/12 17:07		310398	
1,1-Dichloroethane (1,1-DCA)	1000	U	1000	63	166.5	NA	9/20/12 17:07		310398	
1,1-Dichloroethene (1,1-DCE)	1000	U	1000	110	166.5	NA	9/20/12 17:07		310398	
1,2-Dichloroethane	1000	U	1000	65	166.5	NA	9/20/12 17:07		310398	
1,2-Dichloropropane	1000	U	1000	77	166.5	NA	9/20/12 17:07		310398	
n-Butanol	51000	U	51000	11000	166.5	NA	9/20/12 17:07		310398	
2-Butanone (MEK)	1000	U	1000	320	166.5	NA	9/20/12 17:07		310398	
2-Hexanone	1000	U	1000	120	166.5	NA	9/20/12 17:07		310398	
4-Methyl-2-pentanone	1000	U	1000	110	166.5	NA	9/20/12 17:07		310398	
Acetone	1000	U	1000	230	166.5	NA	9/20/12 17:07		310398	
Benzene	1000	U	1000	55	166.5	NA	9/20/12 17:07		310398	
Bromodichloromethane	1000	U	1000	51	166.5	NA	9/20/12 17:07		310398	
Bromoform	1000	U	1000	140	166.5	NA	9/20/12 17:07		310398	
Bromomethane	1000	U	1000	91	166.5	NA	9/20/12 17:07		310398	
Carbon Disulfide	**120**	I	1000	61	166.5	NA	9/20/12 17:07		310398	
Carbon Tetrachloride	1000	U	1000	53	166.5	NA	9/20/12 17:07		310398	
Chlorobenzene	1000	U	1000	57	166.5	NA	9/20/12 17:07		310398	
Chloroethane	1000	U	1000	77	166.5	NA	9/20/12 17:07		310398	
Chloroform	1000	U	1000	87	166.5	NA	9/20/12 17:07		310398	
Chloromethane	1000	U	1000	93	166.5	NA	9/20/12 17:07		310398	
Dibromochloromethane	1000	U	1000	47	166.5	NA	9/20/12 17:07		310398	
Dichloromethane	1000	U	1000	93	166.5	NA	9/20/12 17:07		310398	
Ethylbenzene	1000	U	1000	63	166.5	NA	9/20/12 17:07		310398	
Styrene	1000	U	1000	41	166.5	NA	9/20/12 17:07		310398	
Tetrachloroethene (PCE)	1000	U	1000	41	166.5	NA	9/20/12 17:07		310398	
Toluene	1000	U	1000	69	166.5	NA	9/20/12 17:07		310398	
Trichloroethene (TCE)	**2900**		1000	41	166.5	NA	9/20/12 17:07		310398	
Vinyl Chloride	**1700**		1000	65	166.5	NA	9/20/12 17:07		310398	
cis-1,2-Dichloroethene	**7200**		1000	51	166.5	NA	9/20/12 17:07		310398	
cis-1,3-Dichloropropene	1000	U	1000	53	166.5	NA	9/20/12 17:07		310398	
m,p-Xylenes	2000	U	2000	110	166.5	NA	9/20/12 17:07		310398	
n-Butyl Acetate	1000	U	1000	47	166.5	NA	9/20/12 17:07		310398	
o-Xylene	1000	U	1000	59	166.5	NA	9/20/12 17:07		310398	
trans-1,2-Dichloroethene	**160**	I	1000	77	166.5	NA	9/20/12 17:07		310398	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1044
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-037.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-012	**Basis:**	Dry
		Percent Solids:	82.4

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	1000	U	1000	49	166.5	NA	9/20/12 17:07		310398	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	9/20/12 17:07	
Dibromofluoromethane	100	89-119	9/20/12 17:07	
Toluene-d8	99	87-121	9/20/12 17:07	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1047
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-040.0-20120910		
Lab Code:	R1206036-013	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**77.9**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1047
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-040.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-013	**Basis:**	Dry
		Percent Solids:	77.9

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	740	U	740	57	115.5	NA	9/14/12 22:27		309582	
1,1,2,2-Tetrachloroethane	740	U	740	30	115.5	NA	9/14/12 22:27		309582	
1,1,2-Trichloroethane	740	U	740	61	115.5	NA	9/14/12 22:27		309582	
1,1-Dichloroethane (1,1-DCA)	740	U	740	46	115.5	NA	9/14/12 22:27		309582	
1,1-Dichloroethene (1,1-DCE)	740	U	740	79	115.5	NA	9/14/12 22:27		309582	
1,2-Dichloroethane	740	U	740	48	115.5	NA	9/14/12 22:27		309582	
1,2-Dichloropropane	740	U	740	57	115.5	NA	9/14/12 22:27		309582	
n-Butanol	37000	U	37000	7500	115.5	NA	9/14/12 22:27		309582	
2-Butanone (MEK)	740	U	740	230	115.5	NA	9/14/12 22:27		309582	
2-Hexanone	740	U	740	86	115.5	NA	9/14/12 22:27		309582	
4-Methyl-2-pentanone	740	U	740	75	115.5	NA	9/14/12 22:27		309582	
Acetone	740	U	740	170	115.5	NA	9/14/12 22:27		309582	
Benzene	740	U	740	41	115.5	NA	9/14/12 22:27		309582	
Bromodichloromethane	740	U	740	38	115.5	NA	9/14/12 22:27		309582	
Bromoform	740	U	740	97	115.5	NA	9/14/12 22:27		309582	
Bromomethane	**110**	I	740	67	115.5	NA	9/14/12 22:27		309582	
Carbon Disulfide	**71**	I	740	45	115.5	NA	9/14/12 22:27		309582	
Carbon Tetrachloride	740	U	740	39	115.5	NA	9/14/12 22:27		309582	
Chlorobenzene	740	U	740	42	115.5	NA	9/14/12 22:27		309582	
Chloroethane	740	U	740	57	115.5	NA	9/14/12 22:27		309582	
Chloroform	740	U	740	64	115.5	NA	9/14/12 22:27		309582	
Chloromethane	740	U	740	69	115.5	NA	9/14/12 22:27		309582	
Dibromochloromethane	740	U	740	35	115.5	NA	9/14/12 22:27		309582	
Dichloromethane	740	U	740	69	115.5	NA	9/14/12 22:27		309582	
Ethylbenzene	740	U	740	46	115.5	NA	9/14/12 22:27		309582	
Styrene	740	U	740	30	115.5	NA	9/14/12 22:27		309582	
Tetrachloroethene (PCE)	740	U	740	30	115.5	NA	9/14/12 22:27		309582	
Toluene	740	U	740	51	115.5	NA	9/14/12 22:27		309582	
Trichloroethene (TCE)	**110**	I	740	30	115.5	NA	9/14/12 22:27		309582	
Vinyl Chloride	**730**	I	740	48	115.5	NA	9/14/12 22:27		309582	
cis-1,2-Dichloroethene	**670**	I	740	38	115.5	NA	9/14/12 22:27		309582	
cis-1,3-Dichloropropene	740	U	740	39	115.5	NA	9/14/12 22:27		309582	
m,p-Xylenes	1500	U	1500	81	115.5	NA	9/14/12 22:27		309582	
n-Butyl Acetate	740	U	740	35	115.5	NA	9/14/12 22:27		309582	
o-Xylene	740	U	740	43	115.5	NA	9/14/12 22:27		309582	
trans-1,2-Dichloroethene	740	U	740	57	115.5	NA	9/14/12 22:27		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1047
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-040.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-013	**Basis:**	Dry
		Percent Solids:	77.9

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	740	U	740	36	115.5	NA	9/14/12 22:27		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/14/12 22:27	
Dibromofluoromethane	100	89-119	9/14/12 22:27	
Toluene-d8	100	87-121	9/14/12 22:27	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1103
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-043.5-20120910		
Lab Code:	R1206036-014	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**78.2**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1103
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-043.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-014	**Basis:**	Dry
		Percent Solids:	78.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	550	U	550	42	86	NA	9/19/12 08:55		309793	
1,1,2,2-Tetrachloroethane	550	U	550	22	86	NA	9/19/12 08:55		309793	
1,1,2-Trichloroethane	550	U	550	46	86	NA	9/19/12 08:55		309793	
1,1-Dichloroethane (1,1-DCA)	550	U	550	35	86	NA	9/19/12 08:55		309793	
1,1-Dichloroethene (1,1-DCE)	550	U	550	59	86	NA	9/19/12 08:55		309793	
1,2-Dichloroethane	550	U	550	36	86	NA	9/19/12 08:55		309793	
1,2-Dichloropropane	550	U	550	42	86	NA	9/19/12 08:55		309793	
n-Butanol	27000	U	27000	5500	86	NA	9/19/12 08:55		309793	
2-Butanone (MEK)	550	U	550	170	86	NA	9/19/12 08:55		309793	
2-Hexanone	550	U	550	64	86	NA	9/19/12 08:55		309793	
4-Methyl-2-pentanone	550	U	550	55	86	NA	9/19/12 08:55		309793	
Acetone	550	U	550	120	86	NA	9/19/12 08:55		309793	
Benzene	550	U	550	30	86	NA	9/19/12 08:55		309793	
Bromodichloromethane	550	U	550	28	86	NA	9/19/12 08:55		309793	
Bromoform	550	U	550	72	86	NA	9/19/12 08:55		309793	
Bromomethane	**62**	IV	550	50	86	NA	9/19/12 08:55		309793	
Carbon Disulfide	**60**	I	550	33	86	NA	9/19/12 08:55		309793	
Carbon Tetrachloride	550	U	550	29	86	NA	9/19/12 08:55		309793	
Chlorobenzene	550	U	550	31	86	NA	9/19/12 08:55		309793	
Chloroethane	550	U	550	42	86	NA	9/19/12 08:55		309793	
Chloroform	550	U	550	48	86	NA	9/19/12 08:55		309793	
Chloromethane	550	U	550	51	86	NA	9/19/12 08:55		309793	
Dibromochloromethane	550	U	550	26	86	NA	9/19/12 08:55		309793	
Dichloromethane	550	U	550	51	86	NA	9/19/12 08:55		309793	
Ethylbenzene	550	U	550	35	86	NA	9/19/12 08:55		309793	
Styrene	550	U	550	22	86	NA	9/19/12 08:55		309793	
Tetrachloroethene (PCE)	550	U	550	22	86	NA	9/19/12 08:55		309793	
Toluene	550	U	550	38	86	NA	9/19/12 08:55		309793	
Trichloroethene (TCE)	**1500**		550	22	86	NA	9/19/12 08:55		309793	
Vinyl Chloride	**1300**		550	36	86	NA	9/19/12 08:55		309793	
cis-1,2-Dichloroethene	**1200**		550	28	86	NA	9/19/12 08:55		309793	
cis-1,3-Dichloropropene	550	U	550	29	86	NA	9/19/12 08:55		309793	
m,p-Xylenes	1100	U	1100	60	86	NA	9/19/12 08:55		309793	
n-Butyl Acetate	550	U	550	26	86	NA	9/19/12 08:55		309793	
o-Xylene	550	U	550	32	86	NA	9/19/12 08:55		309793	
trans-1,2-Dichloroethene	550	U	550	42	86	NA	9/19/12 08:55		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1103
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-043.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-014	**Basis:**	Dry
		Percent Solids:	78.2

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	550	U	550	27	86	NA	9/19/12 08:55		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/19/12 08:55	
Dibromofluoromethane	103	89-119	9/19/12 08:55	
Toluene-d8	100	87-121	9/19/12 08:55	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1107
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-045.0-20120910		
Lab Code:	R1206036-015	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**78.1**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1107
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-045.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-015	**Basis:**	Dry
		Percent Solids:	78.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	630	U	630	48	98	NA	9/14/12 22:59		309582	
1,1,2,2-Tetrachloroethane	630	U	630	26	98	NA	9/14/12 22:59		309582	
1,1,2-Trichloroethane	630	U	630	52	98	NA	9/14/12 22:59		309582	
1,1-Dichloroethane (1,1-DCA)	630	U	630	39	98	NA	9/14/12 22:59		309582	
1,1-Dichloroethene (1,1-DCE)	630	U	630	67	98	NA	9/14/12 22:59		309582	
1,2-Dichloroethane	630	U	630	41	98	NA	9/14/12 22:59		309582	
1,2-Dichloropropane	630	U	630	48	98	NA	9/14/12 22:59		309582	
n-Butanol	31000	U	31000	6300	98	NA	9/14/12 22:59		309582	
2-Butanone (MEK)	630	U	630	200	98	NA	9/14/12 22:59		309582	
2-Hexanone	630	U	630	73	98	NA	9/14/12 22:59		309582	
4-Methyl-2-pentanone	630	U	630	63	98	NA	9/14/12 22:59		309582	
Acetone	630	U	630	140	98	NA	9/14/12 22:59		309582	
Benzene	630	U	630	34	98	NA	9/14/12 22:59		309582	
Bromodichloromethane	630	U	630	32	98	NA	9/14/12 22:59		309582	
Bromoform	630	U	630	82	98	NA	9/14/12 22:59		309582	
Bromomethane	**97**	I	630	57	98	NA	9/14/12 22:59		309582	
Carbon Disulfide	**48**	I	630	38	98	NA	9/14/12 22:59		309582	
Carbon Tetrachloride	630	U	630	33	98	NA	9/14/12 22:59		309582	
Chlorobenzene	630	U	630	36	98	NA	9/14/12 22:59		309582	
Chloroethane	630	U	630	48	98	NA	9/14/12 22:59		309582	
Chloroform	630	U	630	54	98	NA	9/14/12 22:59		309582	
Chloromethane	630	U	630	58	98	NA	9/14/12 22:59		309582	
Dibromochloromethane	630	U	630	29	98	NA	9/14/12 22:59		309582	
Dichloromethane	630	U	630	58	98	NA	9/14/12 22:59		309582	
Ethylbenzene	630	U	630	39	98	NA	9/14/12 22:59		309582	
Styrene	630	U	630	26	98	NA	9/14/12 22:59		309582	
Tetrachloroethene (PCE)	630	U	630	26	98	NA	9/14/12 22:59		309582	
Toluene	630	U	630	43	98	NA	9/14/12 22:59		309582	
Trichloroethene (TCE)	**1500**		630	26	98	NA	9/14/12 22:59		309582	
Vinyl Chloride	**2100**		630	41	98	NA	9/14/12 22:59		309582	
cis-1,2-Dichloroethene	**3700**		630	32	98	NA	9/14/12 22:59		309582	
cis-1,3-Dichloropropene	630	U	630	33	98	NA	9/14/12 22:59		309582	
m,p-Xylenes	1300	U	1300	68	98	NA	9/14/12 22:59		309582	
n-Butyl Acetate	630	U	630	29	98	NA	9/14/12 22:59		309582	
o-Xylene	630	U	630	37	98	NA	9/14/12 22:59		309582	
trans-1,2-Dichloroethene	**74**	I	630	48	98	NA	9/14/12 22:59		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1107
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-045.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-015	**Basis:**	Dry
		Percent Solids:	78.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	630	U	630	31	98	NA	9/14/12 22:59		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/14/12 22:59	
Dibromofluoromethane	103	89-119	9/14/12 22:59	
Toluene-d8	99	87-121	9/14/12 22:59	

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Collected: 9/10/12 1133
Date Received: 9/12/12

Sample Name: LC34-DPT0349-046.5-20120910
Lab Code: R1206036-016

Basis: As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	72.7		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1133
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-046.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-016	**Basis:**	Dry
		Percent Solids:	72.7

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1200	U	1200	90	171	NA	9/19/12 11:40		309793	
1,1,2,2-Tetrachloroethane	1200	U	1200	48	171	NA	9/19/12 11:40		309793	
1,1,2-Trichloroethane	1200	U	1200	97	171	NA	9/19/12 11:40		309793	
1,1-Dichloroethane (1,1-DCA)	1200	U	1200	73	171	NA	9/19/12 11:40		309793	
1,1-Dichloroethene (1,1-DCE)	1200	U	1200	130	171	NA	9/19/12 11:40		309793	
1,2-Dichloroethane	1200	U	1200	76	171	NA	9/19/12 11:40		309793	
1,2-Dichloropropane	1200	U	1200	90	171	NA	9/19/12 11:40		309793	
n-Butanol	59000	U	59000	12000	171	NA	9/19/12 11:40		309793	
2-Butanone (MEK)	1200	U	1200	370	171	NA	9/19/12 11:40		309793	
2-Hexanone	1200	U	1200	140	171	NA	9/19/12 11:40		309793	
4-Methyl-2-pentanone	1200	U	1200	120	171	NA	9/19/12 11:40		309793	
Acetone	1200	U	1200	260	171	NA	9/19/12 11:40		309793	
Benzene	1200	U	1200	64	171	NA	9/19/12 11:40		309793	
Bromodichloromethane	1200	U	1200	59	171	NA	9/19/12 11:40		309793	
Bromoform	1200	U	1200	160	171	NA	9/19/12 11:40		309793	
Bromomethane	**150**	IV	1200	110	171	NA	9/19/12 11:40		309793	
Carbon Disulfide	1200	U	1200	71	171	NA	9/19/12 11:40		309793	
Carbon Tetrachloride	1200	U	1200	62	171	NA	9/19/12 11:40		309793	
Chlorobenzene	1200	U	1200	66	171	NA	9/19/12 11:40		309793	
Chloroethane	1200	U	1200	90	171	NA	9/19/12 11:40		309793	
Chloroform	1200	U	1200	110	171	NA	9/19/12 11:40		309793	
Chloromethane	1200	U	1200	110	171	NA	9/19/12 11:40		309793	
Dibromochloromethane	1200	U	1200	55	171	NA	9/19/12 11:40		309793	
Dichloromethane	1200	U	1200	110	171	NA	9/19/12 11:40		309793	
Ethylbenzene	1200	U	1200	73	171	NA	9/19/12 11:40		309793	
Styrene	1200	U	1200	48	171	NA	9/19/12 11:40		309793	
Tetrachloroethene (PCE)	1200	U	1200	48	171	NA	9/19/12 11:40		309793	
Toluene	1200	U	1200	80	171	NA	9/19/12 11:40		309793	
Trichloroethene (TCE)	**30000**		1200	48	171	NA	9/19/12 11:40		309793	
Vinyl Chloride	**200**	I	1200	76	171	NA	9/19/12 11:40		309793	
cis-1,2-Dichloroethene	**11000**		1200	59	171	NA	9/19/12 11:40		309793	
cis-1,3-Dichloropropene	1200	U	1200	62	171	NA	9/19/12 11:40		309793	
m,p-Xylenes	2400	U	2400	130	171	NA	9/19/12 11:40		309793	
n-Butyl Acetate	1200	U	1200	55	171	NA	9/19/12 11:40		309793	
o-Xylene	1200	U	1200	69	171	NA	9/19/12 11:40		309793	
trans-1,2-Dichloroethene	1200	U	1200	90	171	NA	9/19/12 11:40		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1133
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-046.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-016	**Basis:**	Dry
		Percent Solids:	72.7

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	1200	U	1200	57	171	NA	9/19/12 11:40		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	9/19/12 11:40	
Dibromofluoromethane	100	89-119	9/19/12 11:40	
Toluene-d8	96	87-121	9/19/12 11:40	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1136
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-048.0-20120910		
Lab Code:	R1206036-017	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**72.6**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1136
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-048.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-017	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	610	U	610	47	89	NA	9/19/12 09:28		309793	
1,1,2,2-Tetrachloroethane	610	U	610	25	89	NA	9/19/12 09:28		309793	
1,1,2-Trichloroethane	610	U	610	51	89	NA	9/19/12 09:28		309793	
1,1-Dichloroethane (1,1-DCA)	610	U	610	39	89	NA	9/19/12 09:28		309793	
1,1-Dichloroethene (1,1-DCE)	610	U	610	65	89	NA	9/19/12 09:28		309793	
1,2-Dichloroethane	610	U	610	40	89	NA	9/19/12 09:28		309793	
1,2-Dichloropropane	610	U	610	47	89	NA	9/19/12 09:28		309793	
n-Butanol	31000	U	31000	6200	89	NA	9/19/12 09:28		309793	
2-Butanone (MEK)	610	U	610	190	89	NA	9/19/12 09:28		309793	
2-Hexanone	610	U	610	72	89	NA	9/19/12 09:28		309793	
4-Methyl-2-pentanone	610	U	610	62	89	NA	9/19/12 09:28		309793	
Acetone	610	U	610	140	89	NA	9/19/12 09:28		309793	
Benzene	610	U	610	34	89	NA	9/19/12 09:28		309793	
Bromodichloromethane	610	U	610	31	89	NA	9/19/12 09:28		309793	
Bromoform	610	U	610	80	89	NA	9/19/12 09:28		309793	
Bromomethane	**86**	IV	610	56	89	NA	9/19/12 09:28		309793	
Carbon Disulfide	**47**	I	610	37	89	NA	9/19/12 09:28		309793	
Carbon Tetrachloride	610	U	610	32	89	NA	9/19/12 09:28		309793	
Chlorobenzene	610	U	610	35	89	NA	9/19/12 09:28		309793	
Chloroethane	610	U	610	47	89	NA	9/19/12 09:28		309793	
Chloroform	610	U	610	53	89	NA	9/19/12 09:28		309793	
Chloromethane	610	U	610	57	89	NA	9/19/12 09:28		309793	
Dibromochloromethane	610	U	610	29	89	NA	9/19/12 09:28		309793	
Dichloromethane	610	U	610	57	89	NA	9/19/12 09:28		309793	
Ethylbenzene	610	U	610	39	89	NA	9/19/12 09:28		309793	
Styrene	610	U	610	25	89	NA	9/19/12 09:28		309793	
Tetrachloroethene (PCE)	610	U	610	25	89	NA	9/19/12 09:28		309793	
Toluene	610	U	610	42	89	NA	9/19/12 09:28		309793	
Trichloroethene (TCE)	**590**	I	610	25	89	NA	9/19/12 09:28		309793	
Vinyl Chloride	**190**	I	610	40	89	NA	9/19/12 09:28		309793	
cis-1,2-Dichloroethene	**19000**		610	31	89	NA	9/19/12 09:28		309793	
cis-1,3-Dichloropropene	610	U	610	32	89	NA	9/19/12 09:28		309793	
m,p-Xylenes	1200	U	1200	67	89	NA	9/19/12 09:28		309793	
n-Butyl Acetate	610	U	610	29	89	NA	9/19/12 09:28		309793	
o-Xylene	610	U	610	36	89	NA	9/19/12 09:28		309793	
trans-1,2-Dichloroethene	**92**	I	610	47	89	NA	9/19/12 09:28		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1136
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-048.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-017	**Basis:**	Dry
		Percent Solids:	72.6

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	610	U	610	30	89	NA	9/19/12 09:28		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	9/19/12 09:28	
Dibromofluoromethane	101	89-119	9/19/12 09:28	
Toluene-d8	98	87-121	9/19/12 09:28	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1148
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-053.0-20120910		
Lab Code:	R1206036-018	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**76.9**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1148
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-053.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-018	**Basis:**	Dry
		Percent Solids:	76.9

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.5	U	5.5	0.81	.85	NA	9/20/12 21:43		310427	
1,1,2,2-Tetrachloroethane	5.5	U	5.5	0.90	.85	NA	9/20/12 21:43		310427	
1,1,2-Trichloroethane	5.5	U	5.5	0.81	.85	NA	9/20/12 21:43		310427	
1,1-Dichloroethane (1,1-DCA)	5.5	U	5.5	1.4	.85	NA	9/20/12 21:43		310427	
1,1-Dichloroethene (1,1-DCE)	5.5	U	5.5	1.5	.85	NA	9/20/12 21:43		310427	
1,2-Dichloroethane	5.5	U	5.5	0.68	.85	NA	9/20/12 21:43		310427	
1,2-Dichloropropane	5.5	U	5.5	1.1	.85	NA	9/20/12 21:43		310427	
n-Butanol	280	U	280	58	.85	NA	9/20/12 21:43		310427	
2-Butanone (MEK)	**3.8**	I	5.5	2.6	.85	NA	9/20/12 21:43		310427	
2-Hexanone	5.5	U	5.5	1.4	.85	NA	9/20/12 21:43		310427	
4-Methyl-2-pentanone	5.5	U	5.5	1.1	.85	NA	9/20/12 21:43		310427	
Acetone	**20**		5.5	3.2	.85	NA	9/20/12 21:43		310427	
Benzene	5.5	U	5.5	0.33	.85	NA	9/20/12 21:43		310427	
Bromodichloromethane	5.5	U	5.5	0.68	.85	NA	9/20/12 21:43		310427	
Bromoform	5.5	U	5.5	1.1	.85	NA	9/20/12 21:43		310427	
Bromomethane	5.5	U	5.5	1.6	.85	NA	9/20/12 21:43		310427	
Carbon Disulfide	**32**		5.5	1.4	.85	NA	9/20/12 21:43		310427	
Carbon Tetrachloride	5.5	U	5.5	1.1	.85	NA	9/20/12 21:43		310427	
Chlorobenzene	5.5	U	5.5	0.33	.85	NA	9/20/12 21:43		310427	
Chloroethane	5.5	U	5.5	3.2	.85	NA	9/20/12 21:43		310427	
Chloroform	5.5	U	5.5	1.4	.85	NA	9/20/12 21:43		310427	
Chloromethane	5.5	U	5.5	0.45	.85	NA	9/20/12 21:43		310427	
Dibromochloromethane	5.5	U	5.5	0.81	.85	NA	9/20/12 21:43		310427	
Dichloromethane	5.5	U	5.5	0.64	.85	NA	9/20/12 21:43		310427	
Ethylbenzene	5.5	U	5.5	0.26	.85	NA	9/20/12 21:43		310427	
Styrene	5.5	U	5.5	0.34	.85	NA	9/20/12 21:43		310427	
Tetrachloroethene (PCE)	5.5	U	5.5	0.98	.85	NA	9/20/12 21:43		310427	
Toluene	**1.6**	I	5.5	0.75	.85	NA	9/20/12 21:43		310427	
Trichloroethene (TCE)	**1.8**	I	5.5	1.2	.85	NA	9/20/12 21:43		310427	
Vinyl Chloride	**67**		5.5	2.1	.85	NA	9/20/12 21:43		310427	
cis-1,2-Dichloroethene	**2.5**	I	5.5	1.1	.85	NA	9/20/12 21:43		310427	
cis-1,3-Dichloropropene	5.5	U	5.5	1.0	.85	NA	9/20/12 21:43		310427	
m,p-Xylenes	11	U	11	1.3	.85	NA	9/20/12 21:43		310427	
n-Butyl Acetate	5.5	U	5.5	0.91	.85	NA	9/20/12 21:43		310427	
o-Xylene	5.5	U	5.5	0.54	.85	NA	9/20/12 21:43		310427	
trans-1,2-Dichloroethene	**1.6**	I	5.5	0.96	.85	NA	9/20/12 21:43		310427	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1148
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0349-053.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-018	**Basis:**	Dry
		Percent Solids:	76.9

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	5.5	U	5.5	0.23	.85	NA	9/20/12 21:43		310427	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	28-150	9/20/12 21:43	
Dibromofluoromethane	102	63-138	9/20/12 21:43	
Toluene-d8	99	66-138	9/20/12 21:43	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1352
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-037.0-20120910		
Lab Code:	R1206036-019	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**83.1**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1352
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-037.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-019	**Basis:**	Dry
		Percent Solids:	83.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	550	U	550	42	91	NA	9/19/12 10:01		309793	
1,1,2,2-Tetrachloroethane	550	U	550	22	91	NA	9/19/12 10:01		309793	
1,1,2-Trichloroethane	550	U	550	45	91	NA	9/19/12 10:01		309793	
1,1-Dichloroethane (1,1-DCA)	550	U	550	34	91	NA	9/19/12 10:01		309793	
1,1-Dichloroethene (1,1-DCE)	550	U	550	59	91	NA	9/19/12 10:01		309793	
1,2-Dichloroethane	550	U	550	36	91	NA	9/19/12 10:01		309793	
1,2-Dichloropropane	550	U	550	42	91	NA	9/19/12 10:01		309793	
n-Butanol	27000	U	27000	5500	91	NA	9/19/12 10:01		309793	
2-Butanone (MEK)	550	U	550	170	91	NA	9/19/12 10:01		309793	
2-Hexanone	550	U	550	64	91	NA	9/19/12 10:01		309793	
4-Methyl-2-pentanone	550	U	550	55	91	NA	9/19/12 10:01		309793	
Acetone	550	U	550	120	91	NA	9/19/12 10:01		309793	
Benzene	550	U	550	30	91	NA	9/19/12 10:01		309793	
Bromodichloromethane	550	U	550	28	91	NA	9/19/12 10:01		309793	
Bromoform	550	U	550	72	91	NA	9/19/12 10:01		309793	
Bromomethane	**64**	IV	550	50	91	NA	9/19/12 10:01		309793	
Carbon Disulfide	**67**	I	550	33	91	NA	9/19/12 10:01		309793	
Carbon Tetrachloride	550	U	550	29	91	NA	9/19/12 10:01		309793	
Chlorobenzene	550	U	550	31	91	NA	9/19/12 10:01		309793	
Chloroethane	550	U	550	42	91	NA	9/19/12 10:01		309793	
Chloroform	550	U	550	48	91	NA	9/19/12 10:01		309793	
Chloromethane	550	U	550	51	91	NA	9/19/12 10:01		309793	
Dibromochloromethane	550	U	550	26	91	NA	9/19/12 10:01		309793	
Dichloromethane	550	U	550	51	91	NA	9/19/12 10:01		309793	
Ethylbenzene	550	U	550	34	91	NA	9/19/12 10:01		309793	
Styrene	550	U	550	22	91	NA	9/19/12 10:01		309793	
Tetrachloroethene (PCE)	550	U	550	22	91	NA	9/19/12 10:01		309793	
Toluene	550	U	550	38	91	NA	9/19/12 10:01		309793	
Trichloroethene (TCE)	**5000**		550	22	91	NA	9/19/12 10:01		309793	
Vinyl Chloride	**2100**		550	36	91	NA	9/19/12 10:01		309793	
cis-1,2-Dichloroethene	**4200**		550	28	91	NA	9/19/12 10:01		309793	
cis-1,3-Dichloropropene	550	U	550	29	91	NA	9/19/12 10:01		309793	
m,p-Xylenes	1100	U	1100	60	91	NA	9/19/12 10:01		309793	
n-Butyl Acetate	550	U	550	26	91	NA	9/19/12 10:01		309793	
o-Xylene	550	U	550	32	91	NA	9/19/12 10:01		309793	
trans-1,2-Dichloroethene	**110**	I	550	42	91	NA	9/19/12 10:01		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1352
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-037.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-019	**Basis:**	Dry
		Percent Solids:	83.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	550	U	550	27	91	NA	9/19/12 10:01		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	9/19/12 10:01	
Dibromofluoromethane	101	89-119	9/19/12 10:01	
Toluene-d8	98	87-121	9/19/12 10:01	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1411
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-040.0-20120910		
Lab Code:	R1206036-020	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**81.1**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1411
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-040.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-020	**Basis:**	Dry
		Percent Solids:	81.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	610	U	610	47	98.5	NA	9/19/12 10:34		309793	
1,1,2,2-Tetrachloroethane	610	U	610	25	98.5	NA	9/19/12 10:34		309793	
1,1,2-Trichloroethane	610	U	610	50	98.5	NA	9/19/12 10:34		309793	
1,1-Dichloroethane (1,1-DCA)	610	U	610	38	98.5	NA	9/19/12 10:34		309793	
1,1-Dichloroethene (1,1-DCE)	610	U	610	65	98.5	NA	9/19/12 10:34		309793	
1,2-Dichloroethane	610	U	610	39	98.5	NA	9/19/12 10:34		309793	
1,2-Dichloropropane	610	U	610	47	98.5	NA	9/19/12 10:34		309793	
n-Butanol	30000	U	30000	6100	98.5	NA	9/19/12 10:34		309793	
2-Butanone (MEK)	610	U	610	190	98.5	NA	9/19/12 10:34		309793	
2-Hexanone	610	U	610	71	98.5	NA	9/19/12 10:34		309793	
4-Methyl-2-pentanone	610	U	610	61	98.5	NA	9/19/12 10:34		309793	
Acetone	610	U	610	140	98.5	NA	9/19/12 10:34		309793	
Benzene	610	U	610	33	98.5	NA	9/19/12 10:34		309793	
Bromodichloromethane	610	U	610	31	98.5	NA	9/19/12 10:34		309793	
Bromoform	610	U	610	79	98.5	NA	9/19/12 10:34		309793	
Bromomethane	77	IV	610	55	98.5	NA	9/19/12 10:34		309793	
Carbon Disulfide	**69**	I	610	37	98.5	NA	9/19/12 10:34		309793	
Carbon Tetrachloride	610	U	610	32	98.5	NA	9/19/12 10:34		309793	
Chlorobenzene	610	U	610	35	98.5	NA	9/19/12 10:34		309793	
Chloroethane	610	U	610	47	98.5	NA	9/19/12 10:34		309793	
Chloroform	610	U	610	53	98.5	NA	9/19/12 10:34		309793	
Chloromethane	610	U	610	56	98.5	NA	9/19/12 10:34		309793	
Dibromochloromethane	610	U	610	28	98.5	NA	9/19/12 10:34		309793	
Dichloromethane	610	U	610	56	98.5	NA	9/19/12 10:34		309793	
Ethylbenzene	610	U	610	38	98.5	NA	9/19/12 10:34		309793	
Styrene	610	U	610	25	98.5	NA	9/19/12 10:34		309793	
Tetrachloroethene (PCE)	610	U	610	25	98.5	NA	9/19/12 10:34		309793	
Toluene	610	U	610	42	98.5	NA	9/19/12 10:34		309793	
Trichloroethene (TCE)	**1100**		610	25	98.5	NA	9/19/12 10:34		309793	
Vinyl Chloride	**960**		610	39	98.5	NA	9/19/12 10:34		309793	
cis-1,2-Dichloroethene	**730**		610	31	98.5	NA	9/19/12 10:34		309793	
cis-1,3-Dichloropropene	610	U	610	32	98.5	NA	9/19/12 10:34		309793	
m,p-Xylenes	1200	U	1200	66	98.5	NA	9/19/12 10:34		309793	
n-Butyl Acetate	610	U	610	28	98.5	NA	9/19/12 10:34		309793	
o-Xylene	610	U	610	36	98.5	NA	9/19/12 10:34		309793	
trans-1,2-Dichloroethene	610	U	610	47	98.5	NA	9/19/12 10:34		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1411
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-040.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-020	**Basis:**	Dry
		Percent Solids:	81.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	610	U	610	30	98.5	NA	9/19/12 10:34		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	9/19/12 10:34	
Dibromofluoromethane	102	89-119	9/19/12 10:34	
Toluene-d8	98	87-121	9/19/12 10:34	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1418
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-044.0-20120910		
Lab Code:	R1206036-021	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.1**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1418
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-044.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-021	**Basis:**	Dry
		Percent Solids:	73.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	700	U	700	54	102.5	NA	9/19/12 11:07		309793	
1,1,2,2-Tetrachloroethane	700	U	700	29	102.5	NA	9/19/12 11:07		309793	
1,1,2-Trichloroethane	700	U	700	58	102.5	NA	9/19/12 11:07		309793	
1,1-Dichloroethane (1,1-DCA)	700	U	700	44	102.5	NA	9/19/12 11:07		309793	
1,1-Dichloroethene (1,1-DCE)	700	U	700	75	102.5	NA	9/19/12 11:07		309793	
1,2-Dichloroethane	700	U	700	45	102.5	NA	9/19/12 11:07		309793	
1,2-Dichloropropane	700	U	700	54	102.5	NA	9/19/12 11:07		309793	
n-Butanol	35000	U	35000	7100	102.5	NA	9/19/12 11:07		309793	
2-Butanone (MEK)	700	U	700	220	102.5	NA	9/19/12 11:07		309793	
2-Hexanone	700	U	700	82	102.5	NA	9/19/12 11:07		309793	
4-Methyl-2-pentanone	700	U	700	71	102.5	NA	9/19/12 11:07		309793	
Acetone	700	U	700	160	102.5	NA	9/19/12 11:07		309793	
Benzene	700	U	700	38	102.5	NA	9/19/12 11:07		309793	
Bromodichloromethane	700	U	700	36	102.5	NA	9/19/12 11:07		309793	
Bromoform	700	U	700	92	102.5	NA	9/19/12 11:07		309793	
Bromomethane	**86**	IV	700	64	102.5	NA	9/19/12 11:07		309793	
Carbon Disulfide	**49**	I	700	43	102.5	NA	9/19/12 11:07		309793	
Carbon Tetrachloride	700	U	700	37	102.5	NA	9/19/12 11:07		309793	
Chlorobenzene	700	U	700	40	102.5	NA	9/19/12 11:07		309793	
Chloroethane	700	U	700	54	102.5	NA	9/19/12 11:07		309793	
Chloroform	700	U	700	61	102.5	NA	9/19/12 11:07		309793	
Chloromethane	700	U	700	65	102.5	NA	9/19/12 11:07		309793	
Dibromochloromethane	700	U	700	33	102.5	NA	9/19/12 11:07		309793	
Dichloromethane	700	U	700	65	102.5	NA	9/19/12 11:07		309793	
Ethylbenzene	700	U	700	44	102.5	NA	9/19/12 11:07		309793	
Styrene	700	U	700	29	102.5	NA	9/19/12 11:07		309793	
Tetrachloroethene (PCE)	700	U	700	29	102.5	NA	9/19/12 11:07		309793	
Toluene	700	U	700	48	102.5	NA	9/19/12 11:07		309793	
Trichloroethene (TCE)	**4800**		700	29	102.5	NA	9/19/12 11:07		309793	
Vinyl Chloride	**2200**		700	45	102.5	NA	9/19/12 11:07		309793	
cis-1,2-Dichloroethene	**3300**		700	36	102.5	NA	9/19/12 11:07		309793	
cis-1,3-Dichloropropene	700	U	700	37	102.5	NA	9/19/12 11:07		309793	
m,p-Xylenes	1400	U	1400	76	102.5	NA	9/19/12 11:07		309793	
n-Butyl Acetate	700	U	700	33	102.5	NA	9/19/12 11:07		309793	
o-Xylene	700	U	700	41	102.5	NA	9/19/12 11:07		309793	
trans-1,2-Dichloroethene	**70**	I	700	54	102.5	NA	9/19/12 11:07		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1418
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-044.0-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-021	**Basis:**	Dry
		Percent Solids:	73.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	700	U	700	34	102.5	NA	9/19/12 11:07		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	9/19/12 11:07	
Dibromofluoromethane	103	89-119	9/19/12 11:07	
Toluene-d8	99	87-121	9/19/12 11:07	

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Sample Name: LC34-DPT0350-045.5-20120910
Lab Code: R1206036-022

Service Request: R1206036
Date Collected: 9/10/12 1441
Date Received: 9/12/12

Basis: As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**73.1**		Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1441
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-045.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-022	**Basis:**	Dry
		Percent Solids:	73.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	2200	U	2200	170	318	NA	9/19/12 12:12		309793	
1,1,2,2-Tetrachloroethane	2200	U	2200	88	318	NA	9/19/12 12:12		309793	
1,1,2-Trichloroethane	2200	U	2200	180	318	NA	9/19/12 12:12		309793	
1,1-Dichloroethane (1,1-DCA)	2200	U	2200	140	318	NA	9/19/12 12:12		309793	
1,1-Dichloroethene (1,1-DCE)	2200	U	2200	240	318	NA	9/19/12 12:12		309793	
1,2-Dichloroethane	2200	U	2200	140	318	NA	9/19/12 12:12		309793	
1,2-Dichloropropane	2200	U	2200	170	318	NA	9/19/12 12:12		309793	
n-Butanol	110000	U	110000	22000	318	NA	9/19/12 12:12		309793	
2-Butanone (MEK)	2200	U	2200	670	318	NA	9/19/12 12:12		309793	
2-Hexanone	2200	U	2200	260	318	NA	9/19/12 12:12		309793	
4-Methyl-2-pentanone	2200	U	2200	220	318	NA	9/19/12 12:12		309793	
Acetone	2200	U	2200	480	318	NA	9/19/12 12:12		309793	
Benzene	2200	U	2200	120	318	NA	9/19/12 12:12		309793	
Bromodichloromethane	2200	U	2200	110	318	NA	9/19/12 12:12		309793	
Bromoform	2200	U	2200	290	318	NA	9/19/12 12:12		309793	
Bromomethane	2200	U	2200	200	318	NA	9/19/12 12:12		309793	
Carbon Disulfide	2200	U	2200	140	318	NA	9/19/12 12:12		309793	
Carbon Tetrachloride	2200	U	2200	120	318	NA	9/19/12 12:12		309793	
Chlorobenzene	2200	U	2200	130	318	NA	9/19/12 12:12		309793	
Chloroethane	2200	U	2200	170	318	NA	9/19/12 12:12		309793	
Chloroform	2200	U	2200	190	318	NA	9/19/12 12:12		309793	
Chloromethane	2200	U	2200	210	318	NA	9/19/12 12:12		309793	
Dibromochloromethane	2200	U	2200	110	318	NA	9/19/12 12:12		309793	
Dichloromethane	2200	U	2200	210	318	NA	9/19/12 12:12		309793	
Ethylbenzene	2200	U	2200	140	318	NA	9/19/12 12:12		309793	
Styrene	2200	U	2200	88	318	NA	9/19/12 12:12		309793	
Tetrachloroethene (PCE)	2200	U	2200	88	318	NA	9/19/12 12:12		309793	
Toluene	2200	U	2200	150	318	NA	9/19/12 12:12		309793	
Trichloroethene (TCE)	**75000**		2200	88	318	NA	9/19/12 12:12		309793	
Vinyl Chloride	2200	U	2200	140	318	NA	9/19/12 12:12		309793	
cis-1,2-Dichloroethene	**2700**		2200	110	318	NA	9/19/12 12:12		309793	
cis-1,3-Dichloropropene	2200	U	2200	120	318	NA	9/19/12 12:12		309793	
m,p-Xylenes	4400	U	4400	240	318	NA	9/19/12 12:12		309793	
n-Butyl Acetate	2200	U	2200	110	318	NA	9/19/12 12:12		309793	
o-Xylene	2200	U	2200	130	318	NA	9/19/12 12:12		309793	
trans-1,2-Dichloroethene	2200	U	2200	170	318	NA	9/19/12 12:12		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	9/10/12 1441
Sample Matrix:	Soil	**Date Received:**	9/12/12
Sample Name:	LC34-DPT0350-045.5-20120910	**Units:**	µg/Kg
Lab Code:	R1206036-022	**Basis:**	Dry
		Percent Solids:	73.1

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	2200	U	2200	110	318	NA	9/19/12 12:12		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	9/19/12 12:12	
Dibromofluoromethane	100	89-119	9/19/12 12:12	
Toluene-d8	98	87-121	9/19/12 12:12	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1206036-MB1	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	9/24/12 16:03	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1206036-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	1.0	U	Percent	1.0	1	NA	9/24/12 18:32	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1210798-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.38	1	NA	9/14/12 20:48		309582	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.20	1	NA	9/14/12 20:48		309582	
1,1,2-Trichloroethane	5.0	U	5.0	0.41	1	NA	9/14/12 20:48		309582	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	0.31	1	NA	9/14/12 20:48		309582	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	0.53	1	NA	9/14/12 20:48		309582	
1,2-Dichloroethane	5.0	U	5.0	0.32	1	NA	9/14/12 20:48		309582	
1,2-Dichloropropane	5.0	U	5.0	0.38	1	NA	9/14/12 20:48		309582	
n-Butanol	250	U	250	50	1	NA	9/14/12 20:48		309582	
2-Butanone (MEK)	5.0	U	5.0	1.6	1	NA	9/14/12 20:48		309582	
2-Hexanone	5.0	U	5.0	0.58	1	NA	9/14/12 20:48		309582	
4-Methyl-2-pentanone	5.0	U	5.0	0.50	1	NA	9/14/12 20:48		309582	
Acetone	5.0	U	5.0	1.1	1	NA	9/14/12 20:48		309582	
Benzene	5.0	U	5.0	0.27	1	NA	9/14/12 20:48		309582	
Bromodichloromethane	5.0	U	5.0	0.25	1	NA	9/14/12 20:48		309582	
Bromoform	5.0	U	5.0	0.65	1	NA	9/14/12 20:48		309582	
Bromomethane	5.0	U	5.0	0.45	1	NA	9/14/12 20:48		309582	
Carbon Disulfide	5.0	U	5.0	0.30	1	NA	9/14/12 20:48		309582	
Carbon Tetrachloride	5.0	U	5.0	0.26	1	NA	9/14/12 20:48		309582	
Chlorobenzene	5.0	U	5.0	0.28	1	NA	9/14/12 20:48		309582	
Chloroethane	5.0	U	5.0	0.38	1	NA	9/14/12 20:48		309582	
Chloroform	5.0	U	5.0	0.43	1	NA	9/14/12 20:48		309582	
Chloromethane	5.0	U	5.0	0.46	1	NA	9/14/12 20:48		309582	
Dibromochloromethane	5.0	U	5.0	0.23	1	NA	9/14/12 20:48		309582	
Dichloromethane	5.0	U	5.0	0.46	1	NA	9/14/12 20:48		309582	
Ethylbenzene	5.0	U	5.0	0.31	1	NA	9/14/12 20:48		309582	
Styrene	5.0	U	5.0	0.20	1	NA	9/14/12 20:48		309582	
Tetrachloroethene (PCE)	5.0	U	5.0	0.20	1	NA	9/14/12 20:48		309582	
Toluene	5.0	U	5.0	0.34	1	NA	9/14/12 20:48		309582	
Trichloroethene (TCE)	5.0	U	5.0	0.20	1	NA	9/14/12 20:48		309582	
Vinyl Chloride	5.0	U	5.0	0.32	1	NA	9/14/12 20:48		309582	
cis-1,2-Dichloroethene	5.0	U	5.0	0.25	1	NA	9/14/12 20:48		309582	
cis-1,3-Dichloropropene	5.0	U	5.0	0.26	1	NA	9/14/12 20:48		309582	
m,p-Xylenes	10	U	10	0.54	1	NA	9/14/12 20:48		309582	
n-Butyl Acetate	5.0	U	5.0	0.23	1	NA	9/14/12 20:48		309582	
o-Xylene	5.0	U	5.0	0.29	1	NA	9/14/12 20:48		309582	
trans-1,2-Dichloroethene	5.0	U	5.0	0.38	1	NA	9/14/12 20:48		309582	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1210798-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	5.0	U	5.0	0.24	1	NA	9/14/12 20:48		309582	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	9/14/12 20:48	
Dibromofluoromethane	104	89-119	9/14/12 20:48	
Toluene-d8	97	87-121	9/14/12 20:48	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1210886-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	19	50.	NA	9/19/12 06:44		309793	
1,1,2,2-Tetrachloroethane	250	U	250	10	50.	NA	9/19/12 06:44		309793	
1,1,2-Trichloroethane	250	U	250	21	50.	NA	9/19/12 06:44		309793	
1,1-Dichloroethane (1,1-DCA)	250	U	250	16	50.	NA	9/19/12 06:44		309793	
1,1-Dichloroethene (1,1-DCE)	250	U	250	27	50.	NA	9/19/12 06:44		309793	
1,2-Dichloroethane	250	U	250	16	50.	NA	9/19/12 06:44		309793	
1,2-Dichloropropane	250	U	250	19	50.	NA	9/19/12 06:44		309793	
n-Butanol	13000	U	13000	2500	50.	NA	9/19/12 06:44		309793	
2-Butanone (MEK)	250	U	250	77	50.	NA	9/19/12 06:44		309793	
2-Hexanone	250	U	250	29	50.	NA	9/19/12 06:44		309793	
4-Methyl-2-pentanone	250	U	250	25	50.	NA	9/19/12 06:44		309793	
Acetone	250	U	250	55	50.	NA	9/19/12 06:44		309793	
Benzene	250	U	250	14	50.	NA	9/19/12 06:44		309793	
Bromodichloromethane	250	U	250	13	50.	NA	9/19/12 06:44		309793	
Bromoform	250	U	250	33	50.	NA	9/19/12 06:44		309793	
Bromomethane	**49**	I	250	23	50.	NA	9/19/12 06:44		309793	
Carbon Disulfide	250	U	250	15	50.	NA	9/19/12 06:44		309793	
Carbon Tetrachloride	250	U	250	13	50.	NA	9/19/12 06:44		309793	
Chlorobenzene	250	U	250	15	50.	NA	9/19/12 06:44		309793	
Chloroethane	250	U	250	19	50.	NA	9/19/12 06:44		309793	
Chloroform	250	U	250	22	50.	NA	9/19/12 06:44		309793	
Chloromethane	250	U	250	23	50.	NA	9/19/12 06:44		309793	
Dibromochloromethane	250	U	250	12	50.	NA	9/19/12 06:44		309793	
Dichloromethane	250	U	250	23	50.	NA	9/19/12 06:44		309793	
Ethylbenzene	250	U	250	16	50.	NA	9/19/12 06:44		309793	
Styrene	250	U	250	10	50.	NA	9/19/12 06:44		309793	
Tetrachloroethene (PCE)	250	U	250	10	50.	NA	9/19/12 06:44		309793	
Toluene	250	U	250	17	50.	NA	9/19/12 06:44		309793	
Trichloroethene (TCE)	250	U	250	10	50.	NA	9/19/12 06:44		309793	
Vinyl Chloride	250	U	250	16	50.	NA	9/19/12 06:44		309793	
cis-1,2-Dichloroethene	250	U	250	13	50.	NA	9/19/12 06:44		309793	
cis-1,3-Dichloropropene	250	U	250	13	50.	NA	9/19/12 06:44		309793	
m,p-Xylenes	500	U	500	27	50.	NA	9/19/12 06:44		309793	
n-Butyl Acetate	250	U	250	12	50.	NA	9/19/12 06:44		309793	
o-Xylene	250	U	250	15	50.	NA	9/19/12 06:44		309793	
trans-1,2-Dichloroethene	250	U	250	19	50.	NA	9/19/12 06:44		309793	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1210886-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	250	U	250	12	50.	NA	9/19/12 06:44		309793	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	9/19/12 06:44	
Dibromofluoromethane	104	89-119	9/19/12 06:44	
Toluene-d8	101	87-121	9/19/12 06:44	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1211090-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	5.0	U	5.0	0.73	1	NA	9/20/12 17:58		310427	
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.81	1	NA	9/20/12 17:58		310427	
1,1,2-Trichloroethane	5.0	U	5.0	0.73	1	NA	9/20/12 17:58		310427	
1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1.3	1	NA	9/20/12 17:58		310427	
1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	1.3	1	NA	9/20/12 17:58		310427	
1,2-Dichloroethane	5.0	U	5.0	0.61	1	NA	9/20/12 17:58		310427	
1,2-Dichloropropane	5.0	U	5.0	0.97	1	NA	9/20/12 17:58		310427	
n-Butanol	250	U	250	53	1	NA	9/20/12 17:58		310427	
2-Butanone (MEK)	5.0	U	5.0	2.3	1	NA	9/20/12 17:58		310427	
2-Hexanone	5.0	U	5.0	1.3	1	NA	9/20/12 17:58		310427	
4-Methyl-2-pentanone	5.0	U	5.0	0.98	1	NA	9/20/12 17:58		310427	
Acetone	5.0	U	5.0	2.9	1	NA	9/20/12 17:58		310427	
Benzene	5.0	U	5.0	0.29	1	NA	9/20/12 17:58		310427	
Bromodichloromethane	5.0	U	5.0	0.61	1	NA	9/20/12 17:58		310427	
Bromoform	5.0	U	5.0	0.93	1	NA	9/20/12 17:58		310427	
Bromomethane	5.0	U	5.0	1.4	1	NA	9/20/12 17:58		310427	
Carbon Disulfide	5.0	U	5.0	1.3	1	NA	9/20/12 17:58		310427	
Carbon Tetrachloride	5.0	U	5.0	0.92	1	NA	9/20/12 17:58		310427	
Chlorobenzene	5.0	U	5.0	0.29	1	NA	9/20/12 17:58		310427	
Chloroethane	5.0	U	5.0	2.9	1	NA	9/20/12 17:58		310427	
Chloroform	5.0	U	5.0	1.3	1	NA	9/20/12 17:58		310427	
Chloromethane	5.0	U	5.0	0.40	1	NA	9/20/12 17:58		310427	
Dibromochloromethane	5.0	U	5.0	0.73	1	NA	9/20/12 17:58		310427	
Dichloromethane	5.0	U	5.0	0.57	1	NA	9/20/12 17:58		310427	
Ethylbenzene	5.0	U	5.0	0.23	1	NA	9/20/12 17:58		310427	
Styrene	5.0	U	5.0	0.30	1	NA	9/20/12 17:58		310427	
Tetrachloroethene (PCE)	5.0	U	5.0	0.88	1	NA	9/20/12 17:58		310427	
Toluene	5.0	U	5.0	0.67	1	NA	9/20/12 17:58		310427	
Trichloroethene (TCE)	5.0	U	5.0	1.1	1	NA	9/20/12 17:58		310427	
Vinyl Chloride	5.0	U	5.0	1.9	1	NA	9/20/12 17:58		310427	
cis-1,2-Dichloroethene	5.0	U	5.0	0.95	1	NA	9/20/12 17:58		310427	
cis-1,3-Dichloropropene	5.0	U	5.0	0.90	1	NA	9/20/12 17:58		310427	
m,p-Xylenes	10	U	10	1.1	1	NA	9/20/12 17:58		310427	
n-Butyl Acetate	5.0	U	5.0	0.82	1	NA	9/20/12 17:58		310427	
o-Xylene	5.0	U	5.0	0.48	1	NA	9/20/12 17:58		310427	
trans-1,2-Dichloroethene	5.0	U	5.0	0.86	1	NA	9/20/12 17:58		310427	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1211090-05	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	5.0	U	5.0	0.20	1	NA	9/20/12 17:58		310427	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	9/20/12 17:58	
Dibromofluoromethane	102	89-119	9/20/12 17:58	
Toluene-d8	102	87-121	9/20/12 17:58	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1211268-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	19	50	NA	9/20/12 15:38		310398	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	9/20/12 15:38		310398	
1,1,2-Trichloroethane	250	U	250	21	50	NA	9/20/12 15:38		310398	
1,1-Dichloroethane (1,1-DCA)	250	U	250	16	50	NA	9/20/12 15:38		310398	
1,1-Dichloroethene (1,1-DCE)	250	U	250	27	50	NA	9/20/12 15:38		310398	
1,2-Dichloroethane	250	U	250	16	50	NA	9/20/12 15:38		310398	
1,2-Dichloropropane	250	U	250	19	50	NA	9/20/12 15:38		310398	
n-Butanol	13000	U	13000	2500	50	NA	9/20/12 15:38		310398	
2-Butanone (MEK)	250	U	250	77	50	NA	9/20/12 15:38		310398	
2-Hexanone	250	U	250	29	50	NA	9/20/12 15:38		310398	
4-Methyl-2-pentanone	250	U	250	25	50	NA	9/20/12 15:38		310398	
Acetone	250	U	250	55	50	NA	9/20/12 15:38		310398	
Benzene	250	U	250	14	50	NA	9/20/12 15:38		310398	
Bromodichloromethane	250	U	250	13	50	NA	9/20/12 15:38		310398	
Bromoform	250	U	250	33	50	NA	9/20/12 15:38		310398	
Bromomethane	250	U	250	23	50	NA	9/20/12 15:38		310398	
Carbon Disulfide	250	U	250	15	50	NA	9/20/12 15:38		310398	
Carbon Tetrachloride	250	U	250	13	50	NA	9/20/12 15:38		310398	
Chlorobenzene	250	U	250	15	50	NA	9/20/12 15:38		310398	
Chloroethane	250	U	250	19	50	NA	9/20/12 15:38		310398	
Chloroform	250	U	250	22	50	NA	9/20/12 15:38		310398	
Chloromethane	250	U	250	23	50	NA	9/20/12 15:38		310398	
Dibromochloromethane	250	U	250	12	50	NA	9/20/12 15:38		310398	
Dichloromethane	250	U	250	23	50	NA	9/20/12 15:38		310398	
Ethylbenzene	250	U	250	16	50	NA	9/20/12 15:38		310398	
Styrene	250	U	250	10	50	NA	9/20/12 15:38		310398	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	9/20/12 15:38		310398	
Toluene	250	U	250	17	50	NA	9/20/12 15:38		310398	
Trichloroethene (TCE)	250	U	250	10	50	NA	9/20/12 15:38		310398	
Vinyl Chloride	250	U	250	16	50	NA	9/20/12 15:38		310398	
cis-1,2-Dichloroethene	250	U	250	13	50	NA	9/20/12 15:38		310398	
cis-1,3-Dichloropropene	250	U	250	13	50	NA	9/20/12 15:38		310398	
m,p-Xylenes	500	U	500	27	50	NA	9/20/12 15:38		310398	
n-Butyl Acetate	250	U	250	12	50	NA	9/20/12 15:38		310398	
o-Xylene	250	U	250	15	50	NA	9/20/12 15:38		310398	
trans-1,2-Dichloroethene	250	U	250	19	50	NA	9/20/12 15:38		310398	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1211268-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	250	U	250	12	50	NA	9/20/12 15:38		310398	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85-122	9/20/12 15:38	
Dibromofluoromethane	99	89-119	9/20/12 15:38	
Toluene-d8	97	87-121	9/20/12 15:38	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1211272-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	250	U	250	19	50	NA	9/21/12 12:20		310599	
1,1,2,2-Tetrachloroethane	250	U	250	10	50	NA	9/21/12 12:20		310599	
1,1,2-Trichloroethane	250	U	250	21	50	NA	9/21/12 12:20		310599	
1,1-Dichloroethane (1,1-DCA)	250	U	250	16	50	NA	9/21/12 12:20		310599	
1,1-Dichloroethene (1,1-DCE)	250	U	250	27	50	NA	9/21/12 12:20		310599	
1,2-Dichloroethane	250	U	250	16	50	NA	9/21/12 12:20		310599	
1,2-Dichloropropane	250	U	250	19	50	NA	9/21/12 12:20		310599	
n-Butanol	13000	U	13000	2500	50	NA	9/21/12 12:20		310599	
2-Butanone (MEK)	250	U	250	77	50	NA	9/21/12 12:20		310599	
2-Hexanone	250	U	250	29	50	NA	9/21/12 12:20		310599	
4-Methyl-2-pentanone	250	U	250	25	50	NA	9/21/12 12:20		310599	
Acetone	250	U	250	55	50	NA	9/21/12 12:20		310599	
Benzene	250	U	250	14	50	NA	9/21/12 12:20		310599	
Bromodichloromethane	250	U	250	13	50	NA	9/21/12 12:20		310599	
Bromoform	250	U	250	33	50	NA	9/21/12 12:20		310599	
Bromomethane	250	U	250	23	50	NA	9/21/12 12:20		310599	
Carbon Disulfide	250	U	250	15	50	NA	9/21/12 12:20		310599	
Carbon Tetrachloride	250	U	250	13	50	NA	9/21/12 12:20		310599	
Chlorobenzene	250	U	250	15	50	NA	9/21/12 12:20		310599	
Chloroethane	250	U	250	19	50	NA	9/21/12 12:20		310599	
Chloroform	250	U	250	22	50	NA	9/21/12 12:20		310599	
Chloromethane	250	U	250	23	50	NA	9/21/12 12:20		310599	
Dibromochloromethane	250	U	250	12	50	NA	9/21/12 12:20		310599	
Dichloromethane	250	U	250	23	50	NA	9/21/12 12:20		310599	
Ethylbenzene	250	U	250	16	50	NA	9/21/12 12:20		310599	
Styrene	250	U	250	10	50	NA	9/21/12 12:20		310599	
Tetrachloroethene (PCE)	250	U	250	10	50	NA	9/21/12 12:20		310599	
Toluene	250	U	250	17	50	NA	9/21/12 12:20		310599	
Trichloroethene (TCE)	250	U	250	10	50	NA	9/21/12 12:20		310599	
Vinyl Chloride	250	U	250	16	50	NA	9/21/12 12:20		310599	
cis-1,2-Dichloroethene	250	U	250	13	50	NA	9/21/12 12:20		310599	
cis-1,3-Dichloropropene	250	U	250	13	50	NA	9/21/12 12:20		310599	
m,p-Xylenes	500	U	500	27	50	NA	9/21/12 12:20		310599	
n-Butyl Acetate	250	U	250	12	50	NA	9/21/12 12:20		310599	
o-Xylene	250	U	250	15	50	NA	9/21/12 12:20		310599	
trans-1,2-Dichloroethene	250	U	250	19	50	NA	9/21/12 12:20		310599	

Client:	GeoSyntec Consultants	**Service Request:**	R1206036
Project:	ESTCP LC34 FO 0552B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1211272-01	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,3-Dichloropropene	250	U	250	12	50	NA	9/21/12 12:20		310599	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	9/21/12 12:20	
Dibromofluoromethane	96	89-119	9/21/12 12:20	
Toluene-d8	98	87-121	9/21/12 12:20	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/14/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 309582

Analyte Name	Lab Control Sample RQ1210798-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	20.2	20.0	101	67 - 121
1,1,2,2-Tetrachloroethane	18.7	20.0	93	72 - 124
1,1,2-Trichloroethane	19.3	20.0	97	81 - 117
1,1-Dichloroethane (1,1-DCA)	20.5	20.0	103	76 - 124
1,1-Dichloroethene (1,1-DCE)	20.4	20.0	102	67 - 119
1,2-Dichloroethane	20.8	20.0	104	72 - 130
1,2-Dichloropropane	20.6	20.0	103	83 - 119
n-Butanol	704	1010	70	49 - 182
2-Butanone (MEK)	17.2	20.0	86	60 - 133
2-Hexanone	16.6	20.0	83	61 - 131
4-Methyl-2-pentanone	18.1	20.0	91	61 - 132
Acetone	18.1	20.0	91	64 - 133
Benzene	20.7	20.0	103	78 - 118
Bromodichloromethane	21.7	20.0	108	79 - 123
Bromoform	22.0	20.0	110	69 - 126
Bromomethane	16.4	20.0	82	49 - 124
Carbon Disulfide	22.2	20.0	111	67 - 138
Carbon Tetrachloride	22.9	20.0	115	64 - 129
Chlorobenzene	20.6	20.0	103	80 - 121
Chloroethane	17.6	20.0	88	72 - 130
Chloroform	20.1	20.0	101	75 - 123
Chloromethane	15.8	20.0	79	55 - 139
Dibromochloromethane	22.6	20.0	113	78 - 127
Dichloromethane	19.6	20.0	98	73 - 122
Ethylbenzene	19.6	20.0	98	75 - 123
Styrene	20.1	20.0	101	80 - 121
Tetrachloroethene (PCE)	21.6	20.0	108	71 - 127
Toluene	20.9	20.0	104	77 - 120
Trichloroethene (TCE)	21.1	20.0	106	75 - 122
Vinyl Chloride	18.4	20.0	92	68 - 139
cis-1,2-Dichloroethene	20.1	20.0	100	77 - 123
cis-1,3-Dichloropropene	19.5	20.0	97	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/14/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 309582

Analyte Name	Lab Control Sample RQ1210798-03 Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	41.2	40.0	103	77 - 124
n-Butyl Acetate	18.3	20.0	92	61 - 126
o-Xylene	20.1	20.0	101	77 - 131
trans-1,2-Dichloroethene	20.1	20.0	100	72 - 120
trans-1,3-Dichloropropene	19.9	20.0	100	69 - 127

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COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/19/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 309793

Lab Control Sample
RQ1210886-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	22.9	20.0	115	67 - 121
1,1,2,2-Tetrachloroethane	20.3	20.0	102	72 - 124
1,1,2-Trichloroethane	20.3	20.0	101	81 - 117
1,1-Dichloroethane (1,1-DCA)	22.1	20.0	111	76 - 124
1,1-Dichloroethene (1,1-DCE)	22.1	20.0	110	67 - 119
1,2-Dichloroethane	22.5	20.0	112	72 - 130
1,2-Dichloropropane	21.4	20.0	107	83 - 119
n-Butanol	855	1010	85	49 - 182
2-Butanone (MEK)	20.7	20.0	103	60 - 133
2-Hexanone	20.7	20.0	104	61 - 131
4-Methyl-2-pentanone	22.4	20.0	112	61 - 132
Acetone	21.6	20.0	108	64 - 133
Benzene	21.7	20.0	109	78 - 118
Bromodichloromethane	22.8	20.0	114	79 - 123
Bromoform	24.4	20.0	122	69 - 126
Bromomethane	19.2	20.0	96	49 - 124
Carbon Disulfide	22.6	20.0	113	67 - 138
Carbon Tetrachloride	25.1	20.0	126	64 - 129
Chlorobenzene	21.3	20.0	107	80 - 121
Chloroethane	19.6	20.0	98	72 - 130
Chloroform	21.4	20.0	107	75 - 123
Chloromethane	17.8	20.0	89	55 - 139
Dibromochloromethane	23.4	20.0	117	78 - 127
Dichloromethane	20.4	20.0	102	73 - 122
Ethylbenzene	20.5	20.0	103	75 - 123
Styrene	20.3	20.0	101	80 - 121
Tetrachloroethene (PCE)	22.7	20.0	114	71 - 127
Toluene	21.9	20.0	109	77 - 120
Trichloroethene (TCE)	22.4	20.0	112	75 - 122
Vinyl Chloride	20.1	20.0	101	68 - 139
cis-1,2-Dichloroethene	20.6	20.0	103	77 - 123
cis-1,3-Dichloropropene	20.0	20.0	100	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/19/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 309793

Lab Control Sample
RQ1210886-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	42.8	40.0	107	77 - 124
n-Butyl Acetate	21.2	20.0	106	61 - 126
o-Xylene	21.0	20.0	105	77 - 131
trans-1,2-Dichloroethene	21.2	20.0	106	72 - 120
trans-1,3-Dichloropropene	21.1	20.0	106	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 310427

	Lab Control Sample RQ1211090-03			Duplicate Lab Control Sample RQ1211090-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	19.6	20.0	98	17.0	20.0	85	67 - 121	14	30
1,1,2,2-Tetrachloroethane	18.3	20.0	91	17.9	20.0	89	72 - 124	2	30
1,1,2-Trichloroethane	19.9	20.0	99	17.6	20.0	88	81 - 117	12	30
1,1-Dichloroethane (1,1-DCA)	20.7	20.0	104	18.0	20.0	90	76 - 124	14	30
1,1-Dichloroethene (1,1-DCE)	21.7	20.0	109	18.7	20.0	94	67 - 119	15	30
1,2-Dichloroethane	19.5	20.0	97	17.8	20.0	89	72 - 130	9	30
1,2-Dichloropropane	20.2	20.0	101	17.4	20.0	87	83 - 119	15	30
n-Butanol	796	1010	79	671	1010	67	49 - 182	17	30
2-Butanone (MEK)	20.5	20.0	102	17.3	20.0	86	60 - 133	17	30
2-Hexanone	20.4	20.0	102	18.0	20.0	90	61 - 131	12	30
4-Methyl-2-pentanone	19.5	20.0	98	17.4	20.0	87	61 - 132	12	30
Acetone	22.6	20.0	113	19.2	20.0	96	64 - 133	16	30
Benzene	19.6	20.0	98	17.6	20.0	88	78 - 118	11	30
Bromodichloromethane	18.2	20.0	91	16.5	20.0	82	79 - 123	10	30
Bromoform	19.2	20.0	96	17.1	20.0	85	69 - 126	12	30
Bromomethane	17.9	20.0	90	16.5	20.0	83	49 - 124	8	30
Carbon Disulfide	21.7	20.0	108	18.3	20.0	91	67 - 138	17	30
Carbon Tetrachloride	19.9	20.0	100	17.3	20.0	86	64 - 129	14	30
Chlorobenzene	19.6	20.0	98	17.6	20.0	88	80 - 121	11	30
Chloroethane	20.1	20.0	100	17.0	20.0	85	72 - 130	17	30
Chloroform	19.4	20.0	97	16.7	20.0	84	75 - 123	15	30
Chloromethane	18.8	20.0	94	15.9	20.0	79	55 - 139	17	30
Dibromochloromethane	19.3	20.0	97	17.3	20.0	86	78 - 127	11	30
Dichloromethane	19.5	20.0	98	17.6	20.0	88	73 - 122	10	30
Ethylbenzene	20.4	20.0	102	17.8	20.0	89	75 - 123	14	30
Styrene	18.8	20.0	94	17.5	20.0	87	80 - 121	7	30
Tetrachloroethene (PCE)	22.1	20.0	111	18.6	20.0	93	71 - 127	17	30
Toluene	19.3	20.0	97	17.8	20.0	89	77 - 120	8	30
Trichloroethene (TCE)	20.1	20.0	101	17.6	20.0	88	75 - 122	13	30
Vinyl Chloride	19.3	20.0	96	16.5	20.0	83	68 - 139	15	30
cis-1,2-Dichloroethene	20.0	20.0	100	17.6	20.0	88	77 - 123	13	30
cis-1,3-Dichloropropene	18.2	20.0	91	16.6	20.0	83	77 - 125	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 310427

Analyte Name	Lab Control Sample RQ1211090-03 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1211090-04 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
m,p-Xylenes	40.2	40.0	101	36.3	40.0	91	77 - 124	10	30
n-Butyl Acetate	19.2	20.0	96	17.1	20.0	86	61 - 126	12	30
o-Xylene	20.0	20.0	100	17.6	20.0	88	77 - 131	13	30
trans-1,2-Dichloroethene	19.3	20.0	96	18.1	20.0	90	72 - 120	7	30
trans-1,3-Dichloropropene	18.1	20.0	91	15.7	20.0	78	69 - 127	14	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 310398

Lab Control Sample
RQ1211268-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	16.7	20.0	84	67 - 121
1,1,2,2-Tetrachloroethane	18.7	20.0	93	72 - 124
1,1,2-Trichloroethane	18.4	20.0	92	81 - 117
1,1-Dichloroethane (1,1-DCA)	16.4	20.0	82	76 - 124
1,1-Dichloroethene (1,1-DCE)	15.2	20.0	76	67 - 119
1,2-Dichloroethane	18.3	20.0	92	72 - 130
1,2-Dichloropropane	17.0	20.0	85	83 - 119
n-Butanol	731	1010	73	49 - 182
2-Butanone (MEK)	17.1	20.0	86	60 - 133
2-Hexanone	17.4	20.0	87	61 - 131
4-Methyl-2-pentanone	19.2	20.0	96	61 - 132
Acetone	15.1	20.0	75	64 - 133
Benzene	16.2	20.0	81	78 - 118
Bromodichloromethane	18.0	20.0	90	79 - 123
Bromoform	18.3	20.0	92	69 - 126
Bromomethane	17.7	20.0	89	49 - 124
Carbon Disulfide	19.5	20.0	98	67 - 138
Carbon Tetrachloride	17.6	20.0	88	64 - 129
Chlorobenzene	17.1	20.0	85	80 - 121
Chloroethane	14.5	20.0	73	72 - 130
Chloroform	17.3	20.0	87	75 - 123
Chloromethane	15.3	20.0	77	55 - 139
Dibromochloromethane	20.1	20.0	100	78 - 127
Dichloromethane	16.3	20.0	81	73 - 122
Ethylbenzene	16.9	20.0	85	75 - 123
Styrene	18.2	20.0	91	80 - 121
Tetrachloroethene (PCE)	17.2	20.0	86	71 - 127
Toluene	16.6	20.0	83	77 - 120
Trichloroethene (TCE)	17.2	20.0	86	75 - 122
Vinyl Chloride	15.7	20.0	79	68 - 139
cis-1,2-Dichloroethene	17.1	20.0	85	77 - 123
cis-1,3-Dichloropropene	17.5	20.0	88	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/20/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 310398

Lab Control Sample
RQ1211268-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	35.2	40.0	88	77 - 124
n-Butyl Acetate	18.5	20.0	92	61 - 126
o-Xylene	17.5	20.0	88	77 - 131
trans-1,2-Dichloroethene	16.3	20.0	81	72 - 120
trans-1,3-Dichloropropene	18.1	20.0	91	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 310599

Analyte Name	Lab Control Sample RQ1211272-02 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.7	20.0	94	67 - 121
1,1,2,2-Tetrachloroethane	21.5	20.0	107	72 - 124
1,1,2-Trichloroethane	20.9	20.0	105	81 - 117
1,1-Dichloroethane (1,1-DCA)	18.9	20.0	94	76 - 124
1,1-Dichloroethene (1,1-DCE)	17.2	20.0	86	67 - 119
1,2-Dichloroethane	20.0	20.0	100	72 - 130
1,2-Dichloropropane	19.6	20.0	98	83 - 119
n-Butanol	784	1010	78	49 - 182
2-Butanone (MEK)	19.5	20.0	98	60 - 133
2-Hexanone	20.5	20.0	102	61 - 131
4-Methyl-2-pentanone	21.9	20.0	109	61 - 132
Acetone	17.0	20.0	85	64 - 133
Benzene	18.5	20.0	92	78 - 118
Bromodichloromethane	19.7	20.0	99	79 - 123
Bromoform	20.4	20.0	102	69 - 126
Bromomethane	17.0	20.0	85	49 - 124
Carbon Disulfide	20.7	20.0	103	67 - 138
Carbon Tetrachloride	18.9	20.0	94	64 - 129
Chlorobenzene	20.0	20.0	100	80 - 121
Chloroethane	16.4	20.0	82	72 - 130
Chloroform	19.4	20.0	97	75 - 123
Chloromethane	16.4	20.0	82	55 - 139
Dibromochloromethane	22.5	20.0	112	78 - 127
Dichloromethane	18.9	20.0	95	73 - 122
Ethylbenzene	19.5	20.0	98	75 - 123
Styrene	21.2	20.0	106	80 - 121
Tetrachloroethene (PCE)	19.7	20.0	98	71 - 127
Toluene	19.1	20.0	96	77 - 120
Trichloroethene (TCE)	19.2	20.0	96	75 - 122
Vinyl Chloride	17.4	20.0	87	68 - 139
cis-1,2-Dichloroethene	20.0	20.0	100	77 - 123
cis-1,3-Dichloropropene	20.3	20.0	101	77 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: GeoSyntec Consultants
Project: ESTCP LC34 FO 0552B
Sample Matrix: Soil

Service Request: R1206036
Date Analyzed: 9/21/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 310599

Analyte Name	Lab Control Sample RQ1211272-02 Result	Spike Amount	% Rec	% Rec Limits
m,p-Xylenes	40.6	40.0	102	77 - 124
n-Butyl Acetate	19.9	20.0	100	61 - 126
o-Xylene	20.4	20.0	102	77 - 131
trans-1,2-Dichloroethene	18.8	20.0	94	72 - 120
trans-1,3-Dichloropropene	20.6	20.0	103	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 3175

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax)

Project Name: ESTCP LC34	Project Number: FO 0552B
Project Manager: Rebecca Dapraro	Report CC:
Company/Address: GeoSyntec, Titusville, Fl	
Phone #: (321) 269-5880	Email: rdapraro@geosyntec.com
Sampler's Signature:	Sampler's Printed Name: David Sizemore

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 TCL VOCs
LC34-DPT0350-047.0-20120910		9/10/12	1450	Soil	-001	X
LC34-DPT0350-048.5-20120910			1506		-002	X
LC34-DPT0350-053.0-20120910			1643		-003	X
LC34-DPT0351-034.5-20120910			1721		-004	X
LC34-DPT0351-037.0-20120910			1734		-005	X
LC34-DPT0351-040.0-20120910			1739		-006	X
LC34-DPT0349-047.0-20120910		9/10/12	1809		-007	X
LC34-DPT0351-045.5-20120911		9/11/12	913		-008	X
LC34-DPT0351-047.0-20120911			919		-009	X
LC34-DPT0351-048.5-20120911			929		-010	X
LC34-DPT0351-053.0-20120911			938		-011	X

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: FL

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day

REQUESTED REPORT DATE: STND

REPORT REQUIREMENTS
_____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data

Edata X Yes ___

INVOICE INFORMATION
PO #
BILL TO:

R1206036 5
GeoSyntec Consultants
ESTCP LC34 FO 0552B

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: David Sizemore	Printed Name	Printed Name	Printed Name: Amy Hentschke	Printed Name	Printed Name
Firm: GeoSyntec	Firm	Firm	Firm: ALS	Firm	Firm
Date/Time: 9/11/12 1700	Date/Time: 9/11/12 1700	Date/Time	Date/Time: 9/12/12 0950	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 3176

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: ESTCP LC34	Project Number: FO0552B
Project Manager: Rebecca Dapratо	Report CC:
Company/Address: GeoSyntec Consultants, Titusville, FL	
Phone #: (321) 2095880	Email: rdapratо@geosyntec.com
Sampler's Signature:	Sampler's Printed Name: DAVID Sremore

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP	GC/MS SVOAs ◦ 8270 ◦ 625	GC VOAs ◦ 8021 ◦ 601/602	PESTICIDES ◦ 8081 ◦ 608	PCBs ◦ 8082 ◦ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	8260 VOCs EnCore								REMARKS/ ALTERNATE DESCRIPTION
LC34-DPT0349-037.0	20120910	9/10/12	1044	Soil	4	-013							X								
LC34-DPT0349-040.0	20120910		1047			-013							X								
LC34-DPT0349-043.5	20120910		1103			-014							X								
LC34-DPT0349-045.0	20120910		1107			-015							X								
LC34-DPT0349-046.5	20120910		1133			-016							X								
LC34-DPT0349-048.0	20120910		1136			-017							X								
LC34-DPT0349-053.0	20120910		1148			-018							X								
LC34-DPT0350-037.0	20120910		1352			-019							X								
LC34-DPT0350-040.0	20120910		1411			-020							X								
LC34-DPT0350-044.0	20120910		1418			-021							X								
LC34-DPT0350-045.5	20120910		1441			-022							X								

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED FL

TURNAROUND REQUIREMENTS
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_____ 1 day _____ 2 day _____ 3 day
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_____ IV. Data Validation Report with Raw Data
Edata X Yes _____ No

INVOICE INFORMATION
PO #
BILL TO:

R1206036 5
GeoSyntec Consultants
ESTCP LC34 FO 0552B

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: DAVID Sremore	Printed Name	Printed Name	Printed Name: Amy Hentschke	Printed Name	Printed Name
Firm: GeoSyntec	Firm	Firm	Firm: ALS	Firm	Firm
Date/Time: 9/11/12 1700	Date/Time: 9/11/12	Date/Time	Date/Time: 9/12/12 0957	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client GeoSyntec Folder Number R1206086

Cooler received on 9/12/12 by: AWH COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	(NO)			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	(N/A)		
5.	Were **Ice** or **Ice packs** present?	(YES)	NO			
6.	Where did the bottles originate?	(ALS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	2.7°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 9/12/12 1007

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: (Temp Blank) / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: _____

All Samples held in storage location R-002 by AWH on 9/12/12 at 1013

5035 samples placed in storage location F-005 by AWH on 9/12/12 at 1013

PC Secondary Review: KRS 9/12/12

Cooler Breakdown: Date: 9/12/12 Time: 1428 by: AWH

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	(NO)*
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received **	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 06 2512-17

Other Comments:

* Received DPT 351-43.5 not on COC.

PC Secondary Review: KB 9/27/12

*significant air bubbles: VOA > 5-6 mm ; WC ~1 in. diameter

H:\SMODOCS\Cooler Receipt 5.doc